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EUROPEAN ECONOMIC RECONSTRUCTION.

THE EUROPEAN GOVERNMENTS have lost no time in taking up thoroughly and scientifically the question of economic reconstruction and are overlooking no opportunities to set on their feet the industries hardest hit by the war. Before the war was over the German Government had started active measures to protect its wholesale trade after the war and it has already determined to regulate that branch of commerce and industry pertaining to textile fibers, rubber and other articles. What this regulation will consist of is not exactly apparent at present, but it can safely be assumed it will be a supervision over the importation and distribution of the raw materials so that the Teutonic manufacturers will be in a position to compete on a basis of equality with those of other countries.

Despite the loathing for German methods bred by the war, it is apparent the world must trade with the German if for no other reason than to enable him to get the wherewithal to pay his bills for indemnity and reparation. Germany's financial situation is such that she must have credit in order to obtain the raw materials for the manufactured goods that will be sold back to the world she tried to despoil. What security can be offered is problematical and remains to be seen. The prejudice against "made in Germany" is undoubtedly deep, natural and inevitable, but will probably prove to be not insurmountable, even in France and England, where it is stronger than it is here.

JAPANESE FOUNTAIN PENS—A FREE TRADE JOLT.

THE JAPANESE are now making fountain pens at a cost of 2 cents each and shipping them into this country, making their total cost with the Underwood tariff duty of 25 per cent added, 2½ cents apiece. If the thrifty retail dealer sells them at 50 cents each, he is making a very neat little return on his investment. But we have not seen any 50-cent fountain pens that we recall. Fountain pen manufacturers have seemed indifferent to the tariff duties that are collected upon foreign products and also to the general policy of protection. Skilled Japanese workmen are making articles of all kinds and receiving from 34 to 42 cents a day, about one-tenth of what American workmen receive. They are probably not as efficient as American workmen, and their products may not be as good, but they will be good enough to make a considerable dent in the sales of our goods, if the same ratio is preserved as that on fountain pens. If we find ourselves flooded with cheap goods of all kinds in the next few months, bearing the Nipponese stamp, our free trade friends may be kept busy explaining—to manufacturers, workingmen and consumers.

FAKE RUBBER PROMOTER.

UNDER THE ALLITERATIVE TITLE of "Pirates of Promotion," the "World's Work" has printed a list of the leading fake stock company promoters, together with a list of several hundred of the companies which they have floated in order to separate the American public from its hard-earned savings and Liberty Bonds. While oil and gold mining companies, of course, predominate, it cannot be overlooked that the list contains a large number of rubber concerns, plantation rubber companies, rubber substitutes companies and the like. The names of the promoters are some of them well known to the readers of the daily newspapers, generally in connection with a penitentiary sentence for use of the mails to defraud or violations of the Blue-Sky laws. In the preamble to this useful article the magazine states "that of all the oil produced in Oklahoma in 1917, the stock promoting companies had less than two-thousandths of one per cent. For every $555 of capitalization only $1 worth of oil was produced." Of the fourteen rubber concerns listed there are no figures as to the pounds of rubber or the value of the tires they have produced. It is perhaps gratifying to know that of all the hundreds of rubber and tire concerns there are in reality so few that are listed as fakes. The parting warning of the "World's Work" cannot be improved upon.

"As a parting word, we would say that the untrained investor should not depend on any list of pirates of promotion or on any law to protect him. His best protection is to know the methods of the pirates, and in actual investing to deal with houses of only the highest reputation. An ounce of investigation may save a ton of loss and worry. And the new investor should always remember that the only one who stands a chance of getting rich quick in the promotion game is the pirate of promotion."

STANDARD CATALOG SIZES.

OF INTEREST AND IMPORTANCE to the rubber manufacturing trade is the movement that has been started by the National Association of Purchasing Agents looking toward the establishment of a standard size of trade catalogs and invoice forms. Attention was called to the fact that after a careful investigation it was ascertained that catalogs in various lines of industries are made in 147 different sizes, running from 3 by 5 to 9¼ by 13¼ inches. It was urged that a standardization of these publications was emphatically necessary as to size, compilation and mechanical production. The purchasing agents formally adopted the size 7½ by 10⅝ inches for the trimmed page as the national standard of half sizes saddle-stitched so that they will open flat for filing.

From the standpoint of the printer and publisher it is pointed out that the standard size would give artistic proportions, prevent waste of paper by cutting the pages from the standard stock sheet, save presswork by permitting the printing of 16 and 32-page forms, economize space in the storage of type in galley racks, and render it much easier for filing and indexing.

All these are important matters and worthy of consideration. But the standpoint of the rubber manufacturer should not be overlooked. Thousands of dollars are spent annually by the big firms in producing catalogs of their various lines of goods which are an artistic treat and a delight to the eye. The displays of rubber articles are arranged in the most attractive form that highly paid staffs of advertising experts can devise. That these catalogs pay for themselves over and over is apparent, or rubber manufacturers would have found it to their interest to discontinue them. In footwear, for example, the United States Rubber Co. has for years used a standard size of its own, 4¼ by 8½ inches, in its announcements of rubber boots and shoes. The Apsley Rubber Co. announces its outing line of footwear in a neat booklet 6½ by 3½ inches. The Hood Rubber Co. finds its goods are well displayed in catalogs 6 by 3½ inches. Catalogs of druggists' rubber goods, specialties, and fine clothing generally run to larger sizes, sometimes approaching the proportions of a magazine.

Would such a revolution in the printing of rubber trade catalogs be worth the expense involved and would it not be a step toward the dead level of standardization of all advertising which would make the publications of rubber manufacturers resemble the catalog of a mail-order house? And would it not be a step toward the destruction of individuality in salesmanship if pushed to its logical conclusion?

Special price lists for purchasing agents, of a type that is most convenient, will probably be supplied, but it is to be hoped that they will not supersede the more interesting and artistic trade catalogs. Standardization and uniformity have their merits, but can easily be carried too far. Standardization of purchasing agents in appearance, accessibility, office equipment and uniform would be a godsend to rubber goods salesmen, yet, we doubt its adoption.

The movement recently instituted by this association to adopt standard forms for invoices, purchase orders, acknowledgments, and notices of shipments, has much to commend it and seems likely to meet with the approval of most progressive firms.

MAKING OVER DISABLED WORKMEN.

A MOVE IN THE RIGHT DIRECTION is that of The B. F. Goodrich Rubber Co., which long ago established a department for the rehabilitation of disabled workmen. The company has already succeeded in rendering most efficient aid to men injured in their own factories, by which they are assured of a good future by being taught to overcome their physical handicaps. Several men who have lost fingers, a hand or other members, which in the past would have absolutely incapacitated them for lucrative work, have been enabled to secure an education in other lines so that they are not only self-supporting, but in some instances are earning more money than they did before. The example of the Goodrich company is commended to other firms to follow, indeed is being followed by others, and with the return of the numerous soldiers injured in the war, the field of the rehabilitation department will be considerably broadened. In connection with the efforts the Government is making to assist its maimed soldiers, it can be made of the greatest benefit to the nation.

WOMEN WORKERS IN RUBBER.

HOW HAS THE RETURN of thousands of men from war service affected the thousands of women rubber workers who were employed primarily to meet war workers who were employed primarily to meet war emergency?

Some readjustments were inevitable, but indications point to the conclusion that women workers will be affected less seriously than casual thought might seem to indicate. Many women were employed who never worked before, and returned to the rôle of home-makers when their husbands, fathers and brothers returned from overseas. Many more, engaged in heavy work which they would not wish to follow through life, abandon it for lighter tasks yielding good compensation. Women are, however, employed more extensively in rubber mills than hitherto, and in more varied capacities, but on work requiring nimble fingers rather than strength.

German Ravages in the Rubber Factories of Northern France.

Special Correspondence.

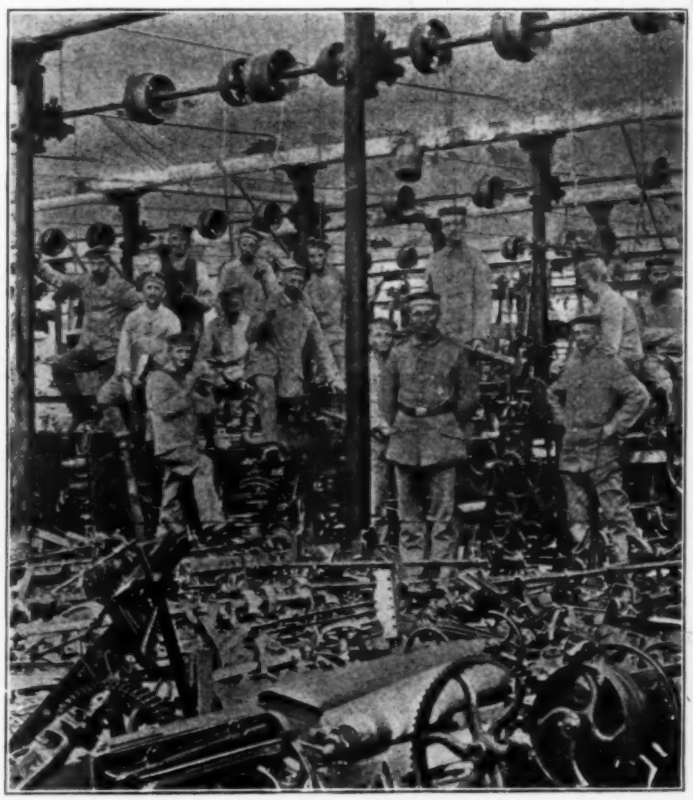
Just as soon as the armistice was signed a special correspondent of THE INDIA RUBBER WORLD *was dispatched to the portions of the occupied territory in Northern France which were once rubber centers of importance. After much difficulty, owing to lack of transportation and housing, the story was secured and photographs taken. The record is of intense interest, not only historically but as bringing home to rubber manufacturers everywhere the losses suffered by a once prosperous portion of their own industry.*

HOWEVER SYSTEMATIC AND IMPORTANT THE RAVAGES committed by the German armies in the rubber factories of Walloon and Flanders, they are nevertheless in no way to be compared with what the establishments situated in the north and northeast of France had to suffer—territories where the fighting was going on for nearly five years.

The ten departments invaded, where the firing line underwent ceaseless fluctuations during this long period, were those where the rubber industry was reaching an intense development, responding to the general need of the country as well as to the local demands of this district, the greatest industrial center in France.

In the departments invaded as early as August, 1914, and not evacuated until November, 1918, the Germans, anxious to destroy future competition from the first day of occupation, proceeded in the systematic destruction of the factories according to an elaborate plan laid out in advance, and of which the following are the details:

In February, 1916, the German General Staff instituted a thorough study of the French and Belgian industries in the occupied districts. It was a detailed inventory of more than 5,000 factories, for which 200 experts were specially recalled from the front. This report, which fell into French hands after the German defeat, covers the most important industrial branches, from a technical as well as from an economic point of view. It describes the conditions under which the various industries exist; it exposes their relations with Germany and with the markets of the world; it gives, furthermore, a summary of the repercussions that will probably result for Germany from the destruction of certain branches of these industries.



POST-CARD SENT BY GERMAN SOLDIERS TO THE DIRECTOR OF A TIRE DUCK FACTORY AT BOUSSIÈRES, SHOWING THEIR WORK OF DESTRUCTION.

Rubber goods manufacture, like all other branches of industry, was examined from the following triple point of view:

1—Its position at the time of the invasion.

2—Its position resulting from the damages sustained, at the time of the investigation.

3—The profit that the German industry could derive from its disappearance and from the destruction of its factories.

The damages found by the German experts are divided into two classes and are placed under the following headings:

1—Damages caused directly by the operations of war.

2—Damages resulting from the proceedings of the German authorities.

The report, in reality, constitutes an avowal of the thieves and destroyers themselves that the German campaign was, in the words of Premier Clémenceau, "a thorough and well-calculated conspiracy with the view of exterminating France industrially and commercially as well as militarily."

How the Germans inflicted damages upon the Belgian rubber industry aggregating one hundred million francs has already been recounted in detail in THE INDIA RUBBER WORLD of June 1, 1919.

Eliminating the means of production by removing the machinery from the various factories, of both Belgium and Northern France, they assured themselves, in case of complete victory, of outlets where no one could compete against them.

The shameless theft of raw material from the factories enabled them to enlarge, without expense, their means of production. The carrying away of raw materials of all kinds, requisitioned or simply stolen, increased their stocks without any new expenditure and allowed them to decrease their cost prices.

In the regions which the front has successively occupied, and on the ever-changing line of Halenburg the ravages have been still more important. In the departments subjected to the caprices of the *Kommandaturs*, supplies and crude materials have disappeared, but, empty as they may be, none the less the factory buildings remain standing, and with energy can still be reequipped easily enough and set working, as was done in the case of the Englebert Works at Liège.

On the firing line it was altogether different, because, not only the supplies had disappeared, but also, as the accompanying photographs show, the buildings themselves, subjected to the attacks of shells of every caliber, have disappeared.

Of cities like Soissons, St. Quentin, Wailly, Lens, Ham, Albert, nothing is left; everything has been pulled down, and there are accumulations of bricks and burnt stones, which merely indicate the places where heretofore progressive cities and flourish-

ing industries could be found and from which thousands of people made their living.

Wherever the German has passed, even the grass no longer grows, and the very ground, poisoned by toxic gas, ploughed to

PRESS-ROOM AT SOISSONS.

the depths by mines and torpedoes, is as sterile as the dunes of Sahara. It is the country of the dead.

It is unfortunate that the world, and particularly, perhaps, the United States, knows so little about this; and one would never grow weary of repeating the story.

Numerous were the rubber factories erected in these devastated regions, which to-day find themselves stricken from the industrial list through the systematic destructions of the Germans. In the Aisne district the important Boinet Works, founded by Mr. Lefeburé, one of the oldest rubber men, who made a specialty of waterproof fabrics and gloves, has entirely disappeared, and nothing remains. The same is the case with the two rubber factice factories, that of Lefrant & Co., at Ham, and the one founded at Chauny by the well-kown American engineer, Lufbery, a relative of the ace of the Lafayette Escadrille.

The two great Wolber factories at Wailly and Soissons, to which we will refer presently, have also disappeared, and those of Destriez, at Pont Marcy, were partly destroyed. Others more fortunate have been only partly dismantled, but all those whose

BOILER-ROOM AT SOISSONS.

names follow have seen their machinery and raw material vanish; if, in some cases, the walls remain standing, all trace of industrial order has disappeared; the water pipes and smoke stacks have been smashed, the tall chimneys torn down, the foundations of the boiler settings and machinery dynamited.

Such is the case with the Bouchery Works at Croix, Bans à Lhowne, the very important factories of the Colonial Rubber Co. at Prouvy Thiant and those of the Société des Constructions Electriques du Nord et de l'Est, at Jeumont; with the Englebert factories at Givet, with Lefeburé at Pont Marcq, with Michel Jackson and La Royère at Halluin, La Couturé at St. Quentin and with Butrullé and Masquelier, at Tourmignier.

In the Lille and Roubaix regions the destructions have been less severe, but the supplies and raw materials have been just as carefully carried away and nothing remains but the empty buildings, which our victorious armies have retrieved. This was the lot of the Masuré establishments and the Coston factories at Roubaix, of the Place and Meurisse works at Lille and of that of Flament Frères at Solesmes.

It has not been possible until now to make up the balance sheet of the ravages committed by the Germans, which runs into millions and millions. An entire prosperous industry has been systematically ruined, and taking into consideration the immense material difficulties one has to contend with, such as shortage of labor, defective machines, scarcity of money and credit, one knows not how and when these terrible damages can ever be repaired.

Take the case of the Wolber factories, which were situated at Wailly and at Soissons. Among the French factories manufactur-

A PORTION OF THE WOLBER PLANT AT WAILLY.

ing pneumatics and inner tubes for bicycles and automobiles, they were considered among the most important and ranked with those of Michelin and Bergougnan. The area covered by the buildings exceeded 107,639 square feet; the surface of the boilers totaled 1,181 square feet; the motive force was 1,000 horse-power, the hydraulic force supplied by the river Aisne was the same. There were 60 vulcanizing presses in these factories, 25 mills, 8 autoclaves, 7 calenders, 7 spreading machines, and all the accessory equipment which 700 laborers would require—a large staff for France.

These factories were built scarcely fifteen years ago by Mr. Wolber, who was one of the pioneers of the pneumatic tire industry in France. There he had set up model workshops to enlarge his factory at Levallois, established in 1918, and which had become too small for its requirements. From 48,000 tires in the beginning, Levallois, in 1902, had succeeded in turning out 102,000, but could not produce more. The energetic manufacturer was delighted in the possession of this new and potential plant, which reflected the success of its products, and at that time was an evolution in the tire industry.

Under the active direction of Mr. Wolber the factories at Wailly and Soissons, previously described, progressed steadily each year. Building after building was added, new products were manufactured, and as a result the production exceeded 720,000 tires and as many inner tubes at the end of 1913. During

those years Wailly had been literally transformed. Light and airy houses had been built, providing homes for the specialists and workmen, and close by, at Mitry, in the smiling valley of Carreux, Mr. Wolber had installed his private residence, surrounded by a beautiful park.

Very soon it was evident that Wailly was too small for the development of the Wolber factories, and in 1913 Mr. Wolber, foreseeing new manufactures, erected a factory of the most modern construction at Soissons. This was opened three months before the declaration of war.

At that time 900,000 tires and 900,000 inner tubes were being produced, and the new equipment made possible an annual production of up to 1,500,000 pneumatic tires and tubes. The war put a complete stop to the production of this important plant which the battle was destined to destroy.

It is a sad experience for one who wishes to ascertain the devastation wrought, as the correspondent of THE INDIA RUBBER WORLD has done!

A cruel journey along the Chemin des Dames, tragic and glorious, where they silently salute the heroic dead whose graves cover the Plateau de Craonne; a painful trip under the May sun; Soissons martyred, the city dead. What can we say about Wailly? The Wolber factories were its pride! Where are they?

ENGINE-ROOM AT WAILLY.

Destroyed from top to bottom, the fire, the shells, have twisted, smashed down, demolished everything.

At this distressing sight, this inextricable confusion, one forgets the material value of things and feels hatred boil within when thinking of this which was the center of work, this first-class factory with a big future and great promise, stopped when in full swing.

What remains of it all? Nothing, or nearly nothing.

Iron braces twisted and threatening! One can scarcely distinguish the long truss of the spreading room, nor the one for the construction of tire carcasses, nor that for inner tubes; their roofs blown off, riddled with shell holes, overthrown by bombs. All this is beyond words.

Let us leave Wailly in ruins, or rather that which once was Wailly, and go back to Soissons.

The Wolber factory has been cruelly damaged, but having been built after the American fashion of steel and reinforced concrete, it was better able to resist and still preserves the form of a building. The main structure has been hastily repaired and shelters at the present time an automobile park in the rear. The restoration of the building under the energetic supervision of Mr. Wolber, who wishes to work even in the midst of the ruins, is actually almost completed. The chimneys are torn down, the water system has disappeared, the buildings without roof or windows are riddled with bullets or shell splinters—these are only injuries to material things, doubtless less painful than those done to human beings, but they will take as long to heal.

Returning by the broken road, looking at these distressing sights for a long time, we ask ourselves these questions:

THE WOLBER MANSION AT MITRY.

"What will the man do who has experienced such a disaster; who has seen go to pieces a business which it has taken him 30 years to build up?

"At the age of 50 is he going to leave things in the state of awaiting imminent but slow reparation? Hasn't this pioneer's energy become dull as the result of these undeserved misfortunes?"

Then we do not know Wolber! Crushed, but courageous, he has already set to work, aided by his son and son-in-law, by those among his associates who escaped the terrible war. While the war was going on, he erected a new factory at Lavallois, where he manufactured balloon fabrics, and there he has just started the manufacture of tires.

The plans for the reconstruction of Wailly and Soissons are finished and the works of restoration are beginning. New equipment, an improvement on the old, has been ordered and, as soon as received, will be installed and set going. New methods, such as the use of accelerators which the war has made known, will be employed.

PRESS-ROOM AT SOISSONS.

Wolber, always anxious to progress, does not want his regenerated factories to lack any improvement, and that is why he is sending his son, only just demobilized, to make a tour of investigation in the United States, where the rubber industry has reached its perfection.

This is one of the examples among thousands, of the energy with which France has endured the hard trials of the war, and

PNEUMATIC TUBE DEPARTMENT AT WAILLY.

of the efforts which have been made to rebuild an industry which the Germans believed they had killed.

RUBBER IN UNITED STATES COMMERCE.

NOTICEABLE EFFECTS of after-war readjustments are to be perceived in the official statistics of rubber imports and exports for the fiscal year ended June 30, 1919. The year's crude rubber imports were 402,471,531 pounds, value $157,928,132; for the preceding year the imports were 389,599,015 pounds, value $202,800,392; the increase in weight was 12,872,516 but the value fell off greatly, $44,872,260.

In spite of the efforts of governments and planters' associations in the Far East and in Brazil to restrict exportation, the price went down. Much the greater part of the crude rubber (almost wholly plantation) comes from the Far East; the importation from the British East Indies, 272,119,880 pounds, is the largest on record, nearly 14,000,000 pounds more than last year, though it brought in $30,000,000 less, while that from the Dutch East Indies, 39,467,761 pounds valued at only $15,411,620, still falls far behind the record of 1917, 53,663,857 pounds. It seems clear that it is the demand of the United States that has influenced the direction taken by the Eastern product, rather than the fear of submarines.

The Brazilian contribution, 46,407,924 pounds, though an improvement on last year's 41,277,914 pounds, is still behind the 1917 record of 56,818,966 pounds; the price paid for it, $14,744,409, shows less falling off than in the case of plantation rubber.

There was a marked falling off in the importation of allied rubbers and gums. Of balata 1,238,852 pounds, value $593,633, was imported as against 2,449,881 pounds, value $1,278,610, last year and 3,287,445 pounds in 1917. Of jelutong (Pontianak) the imports, free of duty, were 11,363,283 pounds, value $1,199,216, while in 1917, when a duty was imposed, 23,376,389 pounds worth $1,044,022 came in. On the other hand, gutta percha to the amount of 4,151,085 pounds and the value of $710,510 was imported as compared with 1,151,312 pounds worth $147,323 last year, while substitutes for rubber to the extent of 2,159,716 pounds, value $301,479, came into the country; only the value for previous years is given, is $136,438 in 1918 and $39,815 in 1917. The importations of guayule fell off to 2,990,253 pounds, value $761,060, from the 4,307,539 pounds worth $1,341,095 in 1918.

Rubber scrap importations dropped again, being only 8,483,383 pounds as compared with 13,980,303 pounds in 1918 and 20,517,328 pounds in 1917.

The total imports of india rubber, gutta percha and allied gums were 422,414,904 pounds, value $161,192,551, for the year; in 1918 the imports were 414,983,610 pounds, value $206,542,236, and in 1917 they were 405,431,069 pounds, value $194,688,303.

The value of exports of manufactured rubber goods for the year ending June 30, 1919, amounted to $43,856,588 against $33,343,181 in 1918 and $31,105,075 in 1917; the increase over last year was $10,511,407, rubber thus doing its share toward the phenomenal increase in American exports for 1919. For the month of June alone the exports were $5,727,642 as compared with $3,192,528 in 1918, an increase of $2,535,114.

The value of automobile tires rose to $22,630,200 from the $13,977,671 of 1918, an increase of $8,652,529. Exports to France jumped up to $3,227,830 from the $661,648 of 1918, which in turn had been a large increase from the $425,322 of 1917. For the Latin-American countries the increase was also marked. Cuba took $2,009,263 of tires compared with $1,336,233 in 1918; Argentina, $1,837,884 compared with $1,649,840 of the year before; Mexico rose to $1,001,233 in 1919 instead of $777,984 in 1918 and Brazil to $667,319 instead of $455,102, while Chile took $1,130,873 of American automobile tires, there being no official figures for the two years previous, as Chile was included in "other countries." Altogether Latin-America bought $6,646,572 worth of automobile tires as compared with $4,219,159 in 1918, and $3,217,548 in 1917, an increase of $2,427,413, the value of exports being over 50 per cent more than last year and more than double that of two years ago.

Exports to British possessions held their own, in spite of the strong British exertions to favor their own goods and to restrain American manufacturers, except in the case of Canada. For the United Kingdom itself the exports were $832,492 as against $618,071 last year; for Australia and New Zealand the figures were $880,118 and $884,503 against $819,755 and $946,804, respectively, in 1918. British India took $447,856 as against $416,411 in 1918 and British South Africa took $620,732 as against $693,065. For Canada, on the other hand, there was a drop from the $1,776,518 of 1918 to only $961,532. To great Britain, therefore, and her chief colonies and possessions, automobile tires made in the United States were exported in 1919 to the value of $4,628,053, which, compared with the $5,270,624 of 1918, shows a falling off of $642,571; the falling off in Canada more than accounts for this.

The export of tires to the Philippines was $1,412,929 as compared with $863,727 in 1918; to the Dutch East Indies $812,425 worth were sent in 1919 against $347,912 in 1918, while "other countries" account for $5,903,180 in 1919 as compared with $2,530,337 in 1918 and $1,591,623 in 1917.

Exports of belting, hose, and packing again increased very largely over those of the previous year, the figures being $5,716,016 for 1919 as against $4,578,396 in 1918 and $3,532,384 in 1917, the million-dollar increase of 1918 being repeated and better in 1919. The rubber boot export which had risen to $4,861,213 in 1918, dropped to $1,607,412 in 1919, while rubber shoes rose to $2,559,641 in 1919 from the $913,128 of 1918; the decrease in this class of goods over last year is, therefore, $1,508,288. The exports of insulated wire cables for the year ending June 30, 1919, amounted to $8,683,304 worth, as compared with $5,716,275 for 1918 and $7,192,204 for 1917.

"ARE YOU EMPLOYING A DISABLED MAN?"

The Dunlop Rubber Co., Limited, Birmingham, England, is featuring this pertinent question at the bottom of its page advertisement in British trade journals.

THE DEPARTMENT OF COMMERCE GIVES NOTICE THAT HEREAFTER its annual tables will be for the calendar year, instead of the fiscal year ended June 30, as heretofore.

Peace Problems and Progress.

RUBBER MEN JOIN FARM COOPERATION MOVEMENT.

INDUSTRIAL LEADERS of New England, including men prominent in the rubber business, have recently organized the New England Farm and Food Foundation for the purpose of forcing down the cost of living by establishing closer cooperation between the farmer and the consumer.

The waste of food products under present systems, congestion of certain products in one market while other centers are suffering from a scarcity of the same article, and hoarding by profiteers are the particular evils upon which the foundation will center its efforts.

Cooperative buying will be introduced, and the foundation will assist such bodies as already exist along similar lines which in the past have been handicapped by lack of finances.

Farmers will be assisted in obtaining credit and other facilities; in organizing farmers' exchanges and other agencies, and in grading and standardizing the products of the farm. Young men will also be helped in obtaining an agricultural education.

The list of trustees of the foundation looks like a "Blue Book" of New England business leaders and includes M. M. Converse, president of the Converse Rubber Shoe Co., Malden, Massachusetts; Harry G. Fisk, treasurer of The Fisk Rubber Co., Chicopee Falls, Massachusetts; and Frederick C. Hood, treasurer of the Hood Rubber Co., Watertown, Mass.

AMERICAN CREDIT FOR EUROPEAN REHABILITATION.

In an article in the August issue of "Commerce Monthly," James S. Alexander, president of the National Bank of Commerce in New York, a director of the United States Rubber Co., and a member of the recently organized committee of bankers formed to work out ways and means to refinance Europe, clearly outlines the part which America must pay in the rehabilitation overseas.

Stated in broad terms, the situation is, that Europe must have from the United States immense quantities of materials to rebuild and refit for a normally productive economic life. Europe's international banking situation is such that she cannot pay as she goes. Neither is her present productivity such as to enable her to pay for what she buys with what she produces. As a nation, therefore, we must both sell goods to Europe and supply her with the credit to make these purchases. This should be done, not with Government funds, but with private capital organized and administered on a semi-public basis with the approval of the United States Government so as to inspire the wirespread confidence and participation of the investing public in the necessary bonds or debentures, each of which should be secured by the pool of everything collateral that Europe is able to offer.

From the selfish point of view of American interest as well as of that of humanity this is necessary in order to conserve our markets, to conserve our surplus, and to avert possible industrial depression. Moreover, the total market for the United States, in respect to all nations and all commodities, should be allocated for the common good, thus giving equal opportunity to strong and financially weak European nations and to large and small American firms during the reconstruction period.

A pool of Europe's needs can be met by a pool of America's resources through the agency of a great, centralized credit organization of banker's groups with adequate capital and the confidence and support of American business.

SAVINGS STAMPS IN LARGE DENOMINATIONS.

Thrifty Americans can now buy their Savings Stamps in denominations of $100 and $1,000. The new registered Treasury Savings Certificates are exactly the same security, on exactly the same basis with the same exemptions from taxation, and sold on exactly the same terms as the War Savings Stamps which have become the popular investment of the small saver. Moreover, War Savings Stamps are now convertible into Treasury Savings Certificates.

The price of the new certificates is relatively the same as that of War Savings Stamps. The $100 certificate was sold for a $82.40 in January and the price increases 20 cents each month to December, 1919. The $1,000 certificate sold for $824 in January and the price increases $20 each month until December. Treasury Certificates of this year's issue reach maturity January 1, 1924. Prior to that date they can be redeemed on ten days' notice for the cost plus 3 per cent interest.

STEEL TIRES ON SURRENDERED GERMAN TRUCKS.

For the benefit of the Government and the United States motor truck industry there is to be a research investigation of the 47 German trucks recently brought to the United States. It will be conducted under the joint auspices of the Society of Automotive Engineers, the National Automobile Chamber of Commerce, the Motor and Accessory Manufacturers' Association and the Motor Transport Corps of the Army. These trucks were selected from the 1250 turned over by Germany to the United States under the terms of the Armistice. They represent the best available samples of current German practice in truck construction and their study seems likely to prove of value. That most of them are fitted with steel tires again emphasizes the lack of rubber in Germany.

PROPOSED TARIFFS AFFECTING THE RUBBER TRADE.

Among the bills which have been introduced in Congress, and which are now before the Ways and Means Committee for consideration, are several tariff bills which are of interest to the rubber industry. These include bills providing for a tariff of 15 cents per unit (= 1 per cent) of sulphur in the short ton (2,000 pounds) of pyrite and all crude iron sulphide minerals, and on sulphur in whatever form not otherwise provided for, the same tariff per unit of sulphur content; on crude or manufactured barytes, $10 per ton; barium sulphate, $15 per ton, and on barium carbonate, binoxide, chloride and other barium compounds, $20 per ton. On magnesite commercial ore, crushed or ground, ½-cent a pound; calcined, dead burned and grain, ¾-cent a pound; magnesite brick, ¾-cent per pound and 10 per cent ad valorem; on zinc in blocks, bricks or zinc dust, 1⅜ cents per pound; in sheets, 1⅝ cents per pound; sheets coated with nickel or other metal or solutions, 1¾ cents per pound, and worn-out zinc for remanufacture, 1 cent per pound. Zinc oxide and white pigment containing zinc, but no lead, if grained in oil, 1¾ cents per pound; zinc sulphide, 1¼ cents per pound; zinc chloride and sulphate, 1 cent per pound.

Coal-tar products to be divided into three groups: Group 1, free of duty; Group 2, a tariff of 40 per cent and 6 cents a pound, and Group 3, a duty of 45 per cent and 7 cents a pound.

Among the tariff bills already passed by the House, and now before the Senate, may be mentioned one placing a duty of 60 per cent ad valorem on glass and porcelain ware for laboratory purposes. Another places 45 per cent duty on philosophical, scientific, and laboratory instruments and appliances.

THE FEDERAL TRADE COMMISSION ON FOOTWEAR PRICES.

After a comprehensive and thorough investigation, the Federal Trade Commission has found that the high prices of shoes cannot be justified by underlying economic conditions. Packers, tanners, shoe manufacturers and retailers are all said to be taking excessive profits, all of which impose an intolerable burden upon the consumer. Few tanners, for example, who were content to earn 10 per cent on their invested capital in 1914 were found to average less than 20 per cent since 1916 or 1917,

and it is claimed that the profits of all other branches of the leather shoe industry show similar increases during and since the war. Suggestions to remedy the situation include rigid enforcement of the laws against monopolistic control of commodities, legislation forbidding producers of hides to engage in the tanning business, and the adoption of a scheme to acquaint the consumer with the manufacturer's selling price.

It is a significant and gratifying fact that in this arraignment the Federal Trade Commission has found it unnecessary to allude to footwear of any sort that is made in rubber mills. Rubber and fabric shoes with fibre soles and rubber heels were brought to a high degree of appearance, comfort and wearing quality at exactly the right time to be of great service to the public in combating the rising cost of living. For summer wear they solved the problem, and to the fact that selling prices have been kept as close to relatively low manufacturing costs as is consistent with a fair margin of profit may be attributed in large measure the success which has attended fiber-soled fabric shoes since their introduction only a few years ago.

GOVERNMENT RAW MATERIALS AND CHEMICALS FOR SALE.

The War Department, through the Director of Sales, announces the surplus stocks of materials, which will be offered for sale from time to time, generally under sealed proposals. The Raw Material and Scrap Section of the office of the Director of Sales, Munitions Building, Washington, District of Columbia, will furnish information concerning any of the materials listed as on hand July 10 in the schedule recently published.

This list includes 582 tons of rubber, 4,004 feet of rubber belting and 11,565 feet of rubber hose. Of metals and chemicals more or less in demand in the rubber industry may be mentioned: acetone, 56,748 pounds; acid, nitric, 42 per cent, 14,015,451 pounds; acid, hydrochloric, 20 per cent, 511,790 pounds; aluminum sulphate, commercial purity, 2,790 pounds; aluminum sulphate, 17 per cent, 13,600 pounds; carbon bisulphide, 2,000 gallons; carbon tetrachloride, 99 per cent pure, 10,500 pounds; glycerine, 100 pounds; lampblack, dry, 28 tons; lime, 48,163 pounds; nitre cake, 36,000 pounds; rosin, 125 tons; sulphur chloride, 2,619 tons; turpentine, crude, 9,670 gallons; zinc, 40,003 tons; zinc, sheet, 13 tons.

Besides these there are listed 109 tons of burlap, and 302,266 grommets, also 208 tons of grommets.

RUBBER AND ALLIED PROPERTIES SOLD BY THE ALIEN PROPERTY CUSTODIAN.

Definite official information has been received from the Alien Property Custodian regarding the disposal of the property of firms that are of interest to the rubber trade. Final disposal has been made in two cases:

Merck & Co.—Eight thousand shares of the stock of this company were offered for sale on May 9, 1919, for which the McKenna Corporation, of 60 Wall Street, New York City, bid the sum of $3,750,000. This bid has been approved and the transaction closed.

Robert Soltau & Co.—Eight hundred fifty shares of the stock of this company were offered for sale on May 21, 1919, for which the Bishop Gutta Percha Co., 420 East 25th Street, New York City, bid the sum of $208,000. This bid has been approved and the transaction closed.

In three other cases the property has been sold but the necessary formalities were not yet completed on August 14:

Schaeffer & Budenberg Manufacturing Co.—One thousand twenty shares of the stock were offered for sale on June 12, 1919, for which R. B. Phillips, of the American Steam Guage & Valve Manufacturing Co., Boston, Massachusetts, bid the sum of $476,000. This bid has been approved, but final settlement has not yet been completed.

Polack Tyre & Rubber Co.—Two thousand ten shares of the stock of this company were offered for sale on June 17, 1919, for which Joseph Kaufman, 303 Jay Street, Brooklyn, New York, bid the sum of $8,500. This bid has been approved, but final settlement has not yet been effected.

Roessler & Hasslacher Chemical Co.—Six thousand eighteen shares of the stock of this company were offered for sale on July 18, 1919, for which Coffin & Co., of 34 Pine Street, New York City, and the American Aniline Products, Inc., of 80 Fifth Avenue, New York City, bid the sum of $3,039,090. As yet no action has been taken on this sale.

INTERESTING LETTERS FROM OUR READERS.

RUBBER LEATHER.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR—There is a rather interesting comparison of prices to be made which might influence our big rubber manufacturers to a new field of endeavor, and I call attention to the following:

Hemlock sole leather	$0.59 per pound
Upriver fine Para rubber	.55 per pound
Ribbed smoked sheets rubber	.41 per pound

Perhaps my idea is a bit premature, but, nevertheless, I have the very definite belief that rubber manufacturers can produce leather substitute shoes in competition with the regular footwear, and with considerable profit to themselves.

The following are facts that are indisputable as regards rubber manufacture and footwear:

1. Machinery has already been developed for the production of footwear made of canvas, rubber and leather. Very little need be added to complete the necessary machinery for turning out a real shoe.
2. Rubber manufacturers are already producing, first, (A), sole "leather" and secondly, (B), "leather" for all sorts of hand baggage.
   (A) The first is a stiff firm leather substitute that has already taken the place of real leather and has proved itself, in many ways, more advantageous.
   (B) The second "leather" is a soft compound that would seem, by all appearances, to be an excellent substitute for shoe "uppers." It is durable, soft and pliable, and, in appearance, equals the best quality of leather.
3. Here then, already exist the two necessary materials for making a shoe. No doubt, the quality can be improved by further experimentation and compounding of rubber, balata, etc. Canvas interlining would lend a strength that leather could never have.
4. All the colors and shades of leather can easily be reproduced.
5. It is not even unlikely that many parts of the shoe can be molded, thereby saving a considerable labor expense that is impossible with leather.

Considering the above, do you not agree that, with a trifle of added experimentation, there is a very large new field of production open to the rubber manufacturer? With the price of shoes to-day, and considering the low cost of rubber by comparison, it would seem a most opportune time to start this new enterprise.

It might be said that the price of rubber, though low to-day, may advance beyond a point where shoe production would be profitable. But I do not believe that this need be a factor, and I base my belief, first, on the fact that rubber-tree growth is being increased yearly, and, secondly, leather production has reached its maximum if it is not already on the wane. Cattle require grazing land, and this is gradually being absorbed into farm land. Rubber-tree acreage, however, is not made otherwise useless because of the trees, but can also be profitably planted with other useful flora between the trees. There is every reason to believe that, in time, a substitute must be found for leather, and the best material for the purpose would seem to be rubber.

The idea has made me rather enthusiastic, and I hope that some manufacturer will find it equally practicable.

Sincerely yours,

New York City. ALFRED C. EGGERS.

Crude Rubber Prices.[1]

By Isador Lubin.

THE CRUDE RUBBER PRICE SITUATION.

OF ALL THE RAW MATERIALS consumed by modern industry, crude rubber is perhaps the only important staple which has not experienced an increase in price during the period of the world war; and this, in spite of the fact that the world's rubber consumption had increased from 101,000 tons in 1913 to approximately 230,000 tons in 1917. (See Table I.) During these five years the consumption of the United States rose from about 50,000 tons to 175,000 tons,[2] or in other words, from 50 to 70 per cent of the world's total consumption. This was almost 50 per cent more than we used in 1916, twice as much as in 1915, and approximately three times as much as in 1914. In the same period France had increased her consumption some 10,000 tons; while Italy in 1917 took 5,000 tons more crude rubber than in 1913.

TABLE I.—THE CONSUMPTION OF CRUDE RUBBER.[3]

[Long tons.]

	United States.	Great Britain.	France.	Germany.	Italy.	Total.
1910	42,210	20,455	3,799	13,775	2,201	82,440
1911	38,475	16,736	5,398	15,281	2,691	78,581
1912	52,964	18,724	4,633	15,643	3,872	95,836
1913	52,179	25,276	6,500	15,500	2,000	101,455
1914	61,251	18,549	5,000	11,000	4,000	99,800
1915	96,792	15,072	10,770	6,000	6,580	135,214
1916	116,477	26,760	14,685	3,000	8,552	169,474
1917	177,688	25,933	17,000	2,900	6,946	229,017

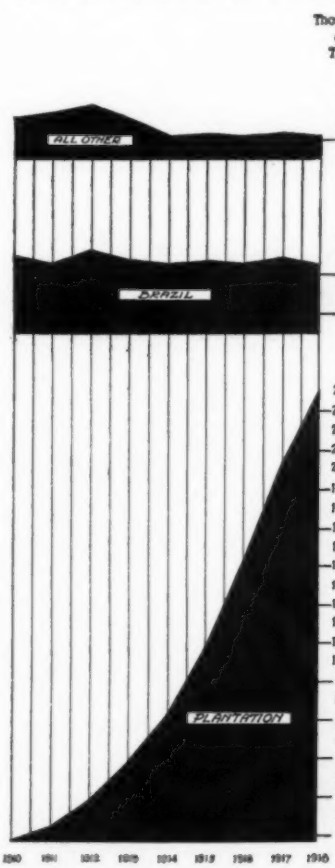


FIGURE 1.—THE WORLD'S RUBBER PRODUCTION, 1910-1918.

How is the falling of prices during the past six years compatible with this vastly expanded consumption? The reply can be found only in an analysis of the situation in Germany and Russia and in the figures of the world's rubber production.

While the consuming countries of the world were taking increasing amounts of crude rubber, the plantations of the Far East were coming into a "bearing" condition. Production was keeping abreast of consumption, and even though the amount of crude rubber going into the manufacture of rubber products during this period increased 127 per cent, the world's production had grown by 147 per cent. (See Table II.) Thus, in spite of the unprecedented rise in consumption, a surplus of 20 per cent was created.

Prior to the outbreak of the war Germany ranked third among the world's consumers of crude rubber. Indeed, she led the world in the manufacture of rubber toys, hard-rubber goods, ocean cables, and rubber packings. Germany in 1913 imported as many as 15,500 tons of crude rubber, which comprised about 15 per cent of the world's production for that year. Shortly after the outbreak of hostilities rubber was declared contraband by England, and all possible pressure was exerted to prevent Germany from receiving any of this material. So stringent was the embargo of the Allies that the German imports were cut to 2,000 tons in 1917, and it is estimated that this amount had been further decreased in 1918 to less than 1,000 tons.

Russia in former years was also an important consumer of crude rubber. In 1916 her imports amounted to over 20,000 tons.[4] The past two years, however, have witnessed a radical decline in Russian consumption—the result, no doubt, of economic disorders. In 1918 her imports were less than 2,000 tons.[5]

Had the consumption of Germany and Russia continued even at the pre-war rate, a rubber surplus would not, in all probability, have existed, and the trend of rubber prices would no doubt have been different.

The surplus of crude rubber, it should be borne in mind, was due entirely to the increased output of the plantations, which grew from 47,618 tons in 1913 to 204,000 in 1917. The production of Brazil remained relatively static in the interim, and that of other parts of the world decreased by some 43 per cent. Until 1913 Brazil had led the world in the output of crude rubber, but since then the production of the plantations has increased by leaps and bounds, until in 1917 it was five times that of Brazil. (See Fig. 1.)

TABLE II.—THE WORLD PRODUCTION OF CRUDE RUBBER.[6]

[Long tons.]

Year.	Plantation.	Brazil.	Other grades.	Total.	Percentage of increase or decrease.
1900	4	26,750	27,136	53,890	...
1901	5	30,300	24,545	54,850	1.7
1902	8	28,700	23,632	52,340	—4.5
1903	21	31,100	24,829	55,950	6.8
1904	43	30,000	32,077	62,120	11.0
1905	145	35,000	27,000	62,145	0.004
1906	510	36,000	29,700	66,210	6.5
1907	1,000	38,000	30,000	69,000	4.2
1908	1,800	39,000	24,600	65,400	—5.2
1909	3,600	42,000	24,000	69,600	6.4
1910	8,200	40,800	21,500	70,500	1.2
1911	14,419	37,730	23,000	75,149	6.5
1912	28,518	42,410	28,000	98,928	31.6
1913	47,618	39,370	21,452	108,440	9.6
1914	71,380	37,000	12,000	120,380	11.0
1915	107,867	37,220	13,615	158,702	31.8
1916	152,650	36,500	12,448	201,598	27.0
1917	204,348	39,370	13,258	256,976	27.4
1918 (estimated)	240,000	38,000	12,000	290,000	12.8

THE RUBBER MARKET DURING THE WAR.

Although the price of crude rubber tended downward during the past six years, several instances, nevertheless, of temporary rises were experienced. Neither of the two leading types of

[1] From Price Bulletin No. 30, issued by the War Industries Board under the direction of Wesley C. Mitchell.

[2] This figure varies slightly from that given in Table I (see THE INDIA RUBBER WORLD, August 1, 1919, page 614), where the 1917 consumption of the United States is given as 157,000 tons. This discrepancy is to be explained by the difference which exists in the compilations of the United States Bureau of Foreign and Domestic Commerce as compared with those of the Rubber Association of America. The latter organization differentiates between the various types of rubber imported, and for purposes of weighing it was necessary to use their figures as given in the above-mentioned table. The figures of the Bureau of Foreign and Domestic Commerce represent all crude india rubber and are used in Table I of this article.

[3] This includes all the important consuming countries of the world, with the exception of Russia, Japan, and Australia, the total consumption of which decreased from 25,000 tons in 1916 to 7,000 tons in 1918. Data from Memorandum on the Rubber Industry, op. cit., page 7.

[4] THE INDIA RUBBER WORLD, March, 1919, page 333.

[5] See footnote No. 3, above.

[6] Data from Commodity Bulletin No. 1, Series VIII, Division of Planning and Statistics, War Industries Board.

TABLE III.—WHOLESALE PRICES OF CRUDE RUBBER AND RUBBER SUBSTITUTES, BY MONTHS, QUARTERS, AND YEARS, 1913-1918.

	Crude rubber.										
	Plantation Hevea.		Brazilian Para.								Rubber substitute, Gutta Jelatong, Pontianak.[b]
	First latex crêpe.[a]	Fine smoked sheets ribbed.[b]	Up-river, fine.[a]	Up-river, coarse.[a]	Upper Caucho, ball.[a]	Caucho, meta.[a]	African Niger, flake.[b]	Centrals, Corinto, scrap.[c]	Guayule, 20 per cent guaranteed.[b]		
Market	New York.	New York.	New York.	New York.	New York.	New York.	New York.	New York.	New York.		New York.
Unit	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.		Pound.
Base price	**$0.6123**	**$0.6471**	**$0.7798**	**$0.4744**	**$0.4692**	**$0.3646**	**$0.2218**	**$0.4525**	**$0.3746**		**$0.0605**
1913—Year	.7492	.8204	.8758	.5802	.5769	.4229	.2383	.5733	.4804		.0639
Quarters—											
First	.9975	1.0783	.9858	.7367	.7433	.5083	.2583	.7600	.6150		.0687
Second	.7917	.8717	.8700	.5767	.5875	.4283	.2500	.5783	.5133		.0650
Third	.6550	.7133	.8800	.5317	.5183	.3867	.2450	.5300	.4333		.0621
Fourth	.5525	.6183	.7675	.4758	.4583	.3683	.2100	.4250	.3600		.0600
Months—											
January	1.0725	1.1250	1.0600	.7925	.7950	.5400	.2650	.7950	.6050		.0563
February	1.0050	1.0950	.9950	.7425	.7450	.5000	.2550	.7600	.6000		.0700
March	.9150	1.0150	.9025	.6750	.6900	.4850	.2550	.7250	.6400		.0800
April	.8250	.9700	.8350	.5775	.5950	.4400	.2500	.5950	.6400		.0800
May	.8100	.8150	.8750	.5925	.6060	.4350	[d].2500	.5450	[d].4300		.0563
June	.7400	.8300	.9000	.5600	.5675	.4100	[d].2500	.5950	[d].4700		.0588
July	.6950	.7250	.8800	.5400	.5400	.3950	.2450	.5550	[d].4500		.0600
August	.6850	.7050	.8900	.5350	.5200	.3800	.2450	.5200	[d].4200		.0638
September	.5850	.7100	.8700	.5200	.4950	.3850	[d].2270	.5150	[d].4300		.0625
October	.5300	.6050	.7900	.4850	.4600	.3725	.2100	.4300	[d].3700		.0600
November	.5700	.5950	.7675	.4850	.4600	.3725	.2100	.4200	[d].3600		.0600
December	.5575	.6550	.7450	.4575	.4550	.3600	.2100	.4250	.3500		.0500
1914—Year	.6473	.6533	.7381	.4742	.4715	.3475	.2327	.4204	.3662		.0673
Quarters—											
First	.6158	.6200	.7542	.4567	.4692	.3567	.2183	.4250	.3600		.0600
Second	.6258	.6367	.7175	.4333	.4308	.3467	.2217	.4300	.3450		.0640
Third	.6658	.6500	.7950	.5050	.4742	.3583	.2250	.4233	.3750		.0708
Fourth	.6817	.7067	.6858	.5017	.5117	.3283	.2633	.4033	.3850		.0783
Months—											
January	.5950	.6050	.7500	.4525	.4725	.3600	.2250	.4250	.3500		.0600
February	.6275	.6300	.7700	.4700	.4825	.3550	.2050	.4000	.3550		.0600
March	.6250	.6250	.7425	.4475	.4525	.3550	.2250	.4500	[d].3750		.0600
April	.6875	.6450	.7450	.4600	.4625	.3600	.2150	.4200	[d].3500		.0600
May	.6200	.6850	.7150	.4350	.4325	.3550	.2250	.4350	[d].3600		.0600
June	.5700	.5800	.6925	.4050	.3975	.3250	.2250	.4350	.3250		.0600
July	.5575	.6000	.7200	.4050	.3950	.3050	.2275	.4100	.3000		.0638
August	.8525	.5750	.9600	.6600	.6000	.4300	.2225	.4100	.3000		.0588
September	.5875	.7750	.7050	.4500	.4275	.3400	[d].2387	.4500	.5250		.0900
October	.5800	.6350	.6475	.4700	.4600	.2900	.2550	.4000	.4750		.0800
November	.6700	.6550	.6850	.4850	.5050	.3150	.2550	.4050	.3400		.0800
December	.7950	.8300	.7250	.5500	.5700	.3800	.2800	.4050	.3400		.0750
1915—Year	.6585	.6567	.6185	.4800	.4925	.3269	.2633	.4460	.3133		.0710
Quarters—											
First	.6608	.7433	.6117	.4842	.4959	.3483	.2733	.4533	.3233		.0750
Second	.6092	.6167	.6071	.4617	.4800	.3233	.2292	.4500	.2866		.0725
Third	.6158	.6125	.5817	.4325	.4400	.2913	.2292	.4258	.3333		.0700
Fourth	.7483	.6542	.6733	.5417	.5542	.3446	.3217	.4550	.3233		.0666
Months—											
January	.7300	.9200	.6700	.5225	.5363	.3550	.3500	.5000	.3850		.0750
February	.6125	.6550	.5838	.4588	.4700	.3350	.2350	.4300	.2950		.0750
March	.6400	.6550	.5813	.4713	.4813	.3550	.2350	.4300	[d].2900		.0750
April	.6050	.6500	.6000	.4638	.4838	.3400	.2275	.4500	.2850		[d].0725
May	.5975	.5900	.6000	.4613	.4838	.3150	.2300	.4500	.2850		.0725
June	.6250	.6100	.6213	.4600	.4725	.3150	.2300	.4500	.2900		.0725
July	.6425	.6300	.6100	.4475	.4575	.3100	.2300	.4450	.3300		.0700
August	.6100	.6200	.5763	.4250	.4350	.2900	.2250	.4350	.3450		.0725
September	.5950	.5875	.5588	.4250	.4275	.2738	.2325	.3975	.3250		.0675
October	.6200	.5950	.5650	.4400	.4450	.2888	.2450	.3975	.2650		.0675
November	.7500	.6175	.6650	.5400	.5475	.3350	.3600	.4125	.3250		.0650
December	.8750	.7500	.7900	.6450	.6700	.4100	.3600	.5550	.3400		.0675

	Crude rubber.										
	Plantation Hevea.		Brazilian Para.								Rubber substitute, Gutta Jelatong, Pontianak.[b]
	First latex crêpe.[a]	Fine smoked sheets ribbed.[b]	Up-river, fine.[a]	Up-river, coarse.[a]	Upper Caucho, ball.[a]	Caucho, meta.[a]	African Niger, flake.[b]	Centrals, Corinto, scrap.[c]	Guayule, 20 per cent guaranteed.[b]		
Market	New York.	New York.	New York.	New York.	New York.	New York.	New York.	New York.	New York.		New York.
Unit	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.	Pound.		Pound.
Base price	**$0.6123**	**$0.6471**	**$0.7798**	**$0.4744**	**$0.4692**	**$0.3646**	**$0.2218**	**$0.4525**	**$0.3746**		**$0.0605**
1916—Year	.7257	.7250	.7391	.5041	.5118	.3586	.3517	.4967	.3916		.0867
Quarters—											
First	.8854	.9060	.7925	.6029	.6271	.4117	.4267	.6200	.4583		.0854
Second	.7296	.7725	.6838	.5100	.5167	.3684	.3800	.5117	.3850		.0938
Third	.5884	.5758	.6883	.4163	.4171	.3217	.3200	.4017	.3450		.0741
Fourth	.6992	.6517	.7917	.4871	.4863	.3325	.2800	.4533	.3483		.0916
Months—											
January	.8963	.9950	.8588	.6475	.6850	.4450	.4900	.7500	.4800		.0713
February	.8575	.7800	.7658	.5738	.5925	.3825	.4000	.5300	.4150		.0850
March	.9025	.9250	.7550	.5875	.6038	.4075	.3900	.5800	.4800		.1000
April	.8313	.8750	.7200	.5625	.5763	.3963	.4100	.5650	.3850		.1050
May	.7163	.7825	.6850	.5175	.5200	.3725	.3800	.5000	.3850		.1050
June	.6413	.6600	.6463	.4500	.4538	.3363	.3500	.4700	.3850		.0775
July	.5838	.5900	.6700	.4100	.4125	.3225	.2800	.4100	.3600		.0775
August	.5825	.5750	.6750	.4038	.3988	.3150	.3300	.3950	.3500		.0800
September	.5988	.5625	.7200	.4350	.4400	.3275	.3500	.4000	.3250		.0650
October	.6250	.5950	.7738	.4475	.4550	.3225	.2800	.4300	.3250		.0650
November	.6838	.6300	.7988	.4763	.4788	.3250	.3300	.4506	.3400		.0850
December	.7888	.7300	.8025	.5375	.5250	.3500	.2300	.4800	.3800		.1256
1917—Year	.7200	.7223	.7083	.4844	.4581	.3266	.3163	.4629	.3679		.1260
Quarters—											
First	.8279	.8025	.7975	.5313	.5375	.3692	.3100	.5088	.4533		.1008
Second	.7875	.8175	.7438	.5184	.4992	.3563	.3133	.5060	.3716		.1733
Third	.6663	.6650	.6854	.4788	.4154	.3113	.2967	.4319	.3566		.1100
Fourth	.5984	.6042	.6067	.4092	.3804	.2606	.3450	.4048	.2900		.1200
Months—											
January	.7750	.7900	.7700	.5063	.5200	.3500	.3000	.4960	.4300		.0850
February	.8575	.7525	.8375	.5550	.5575	.3800	.3000	.5313	.4300		.0975
March	.8513	.8650	.7850	.5325	.5350	.3775	.3300	.5025	.5000		.1260
April	.8175	.8100	.7550	.5163	.5163	.3750	.3300	.5000	.4460		.2000
May	.8250	.8425	.7588	.5325	.5150	.3688	.3000	.5140	.3750		.1600
June	.7200	.8000	.7175	.5063	.4663	.3250	.3100	.5019	.3000		.1600
July	.6775	.6550	.6863	.4850	.4338	.3238	.3100	.4510	.3500		.1160
August	.6513	.6700	.6875	.4813	.4000	.3100	.3000	.4225	.3600		.1100
September	.6700	.6700	.6825	.4700	.4125	.3000	.2800	.4175	.3600		.1100
October	.6388	.6456	.6475	.4425	.3975	.2825	.2800	.4120	.3200		.1200
November	.6013	.6175	.5960	.3963	.3713	.2625	.2750	.4050	.2800		.1200
December	.5550	.5500	.5825	.3888	.3725	.2638	.4800	.3963	.2700		.1200
1918—Year	.6088	.6015	.6456	.3858	.3842	.2658	.3075	.3793	.3208		.1416
Quarters—											
First	.5650	.5608	.5858	.3750	.3733	.2517	.3967	.3710	.2860		.1233
Second	.6200	.6150	.6533	.3783	.3733	.2583	.2733	.3852	.3233		.1433
Third	.6300	.6200	.6800	.4000	.4000	.2800	.2800	.3900	.3500		.1500
Fourth	.6200	.6100	.6633	.3900	.3900	.2733	.2800	.3708	.3300		.1500
Months—											
January	.6100	.6000	.6200	.4200	.4100	.2650	.4800	.3830	.2800		.1200
February	.5250	.5125	.5775	.3700	.3650	.2500	.4550	.3731	.2800		.1200
March	.5600	.5700	.5600	.3350	.3450	.2400	.2550	.3538	.2800		.1300
April	.6000	.6050	.6000	.3450	.3400	.2350	.2700	.3690	.2900		.1400
May	.6300	.6200	.6800	.3900	.3800	.2600	.2700	.4066	.3300		.1450
June	.6300	.6200	.6800	.4000	.4000	.2800	.2800	.3900	.3500		.1450
July	.6300	.6200	.6800	.4000	.4000	.2800	.2800	.3900	.3500		.1500
August	.6300	.6200	.6800	.4000	.4000	.2800	.2800	.3900	.3500		.1500
September	.6300	.6200	.6800	.4000	.4000	.2800	.2800	.3900	.3500		.1500
October	.6300	.6200	.6800	.4000	.4000	.2800	.2800	.3700	.3500		.1500
November	.6150	.6050	.6550	.3850	.3850	.2700	.2800	.3725	.3200		.1500
December	.6150	.6050	.6550	.3850	.3850	.2700	.2800	.3700	.3200		.1500

[a] Prices from private firm, 1913 to 1917; 1918 prices from THE INDIA RUBBER WORLD. [b] Prices from THE INDIA RUBBER WORLD. [c] Prices from "New York Journal of Commerce."
[d] No prices quoted; interpolated.

rubber, however, underwent any sustained rise or fall from the prewar level which was in any way comparable to that prevalent among other commodities. (See Fig. 2.) And in no case did rubber prices reach the level of early 1913.

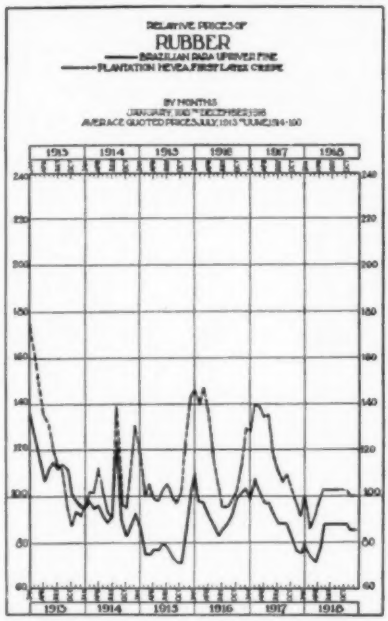


FIGURE 2.—RELATIVE PRICES OF RUBBER: BRAZILIAN PARA UPRIVER, FINE: PLANTATION *Hevea*, FIRST LATEX CRÊPE.—BY MONTHS, JANUARY, 1913, TO DECEMBER, 1918. (AVERAGE QUOTED PRICES, JULY, 1913, TO JUNE, 1914=100.)

The two important types of rubber—plantation first latex crêpe and Pará upriver fine—declined sharply in price during 1913, the former experiencing a decrease of over 50 per cent during the first 10 months of the year.[7] This was due to the large output of plantation rubber,[8] which in 1913 was almost 20,000 tons larger than in any previous year.[9]

The abnormal decline in the price of the plantation variety brought rubber values down to the lowest point ever experienced in the history of the industry. Its effect upon the price level in the years following is made evident in Figure 2. Here it will be noted that while the price of both types of rubber declined in 1913 in a more or less uniform manner, after that time the Parà variety remained slightly below and the plantation slightly above the 1913-14 market level.

This phenomenon is entirely the result of the abnormal decline of plantation prices in 1913 and shows the effect of this price fall on the pre-war level which is the base to which the war prices have been reduced.

The low level of crude rubber prices running throughout the period of the war was broken by important increases but twice—one rise reaching its peak at the end of 1915, and the other early in 1917. Crude rubber prices, like all others, of course, felt the effects of panicky conditions following the outbreak of the European war in August, 1914. With the resumption of activities in September, however, rubber prices returned to their normal level. Both rises mentioned above were common to all types of rubber and may be accounted for by more or less like reasons. Plantation rubber, however, also experienced a temporary increase in December, 1914. This was the result of the British embargo on shipments to this country. In October, 1914, Great Britain decreed that no shipments from her plantations in the Far East should be made to any port other than London. A supplemental decree in November prohibited all exports of crude rubber from any English port whatever. The announcement of this action, and the realization that its enforcement would cut the normal supply of the United States by approximately one-half, sent up some 30 per cent the price of what little rubber there was on the American market. This rise was short-lived, however, and the removal in January, 1917, of the embargo on shipments to the United States under a system of guaranties, brought plantation prices back to normal.

The first general rubber price rise was occasioned by the abnormal demand following the closing of the Suez and Panama Canals and by submarine activity in the Mediterranean. It was expected that the closing of these water routes would shut off supplies from the Far East, and the trade both in London and New York immediately proceeded to buy up whatever supplies were available. The rise early in 1917 was also purely speculative in character and may likewise be attributed to submarine activities.

An important factor which tended to keep rubber prices down during 1918 was the character of the import regulations of the War Trade Board. Rubber was one of the first commodities the import of which was licensed. This was due to the fact that there was great need for rubber by the Central Powers. On December 7, 1917, the War Trade Board issued regulations which provided for the licensing of imports, for the consigning of all imported rubber to the Rubber Association of America, and for the submission of guarantees by importers and manufacturers that they would not sell any rubber, directly or indirectly, to any country at war with the United States, or to any person, unless satisfied that there was no intention of exporting without an export license.

No restriction was placed on the amount of rubber that could be imported until May 8, 1918. The acuteness of the shipping situation then necessitated the reduction of the amount imported to the essential needs of the country. Accordingly, on May 8 the War Trade Board, after conferences with representatives of the rubber industry and the United States Shipping Board, restricted the quantity of rubber to be licensed for import during the three-month period, May, June, and July, to 25,000 long tons, which is at the rate of 100,000 long tons per year, or about two-thirds of the 1917 importations. Subsequently the War Trade Board virtually increased the amount to be licensed for import to 28,000 long tons (green basis) per quarter by ruling that the Brazilian imports should be allocated on a dry basis which allowed approximately 12 per cent for water content.

TABLE IV—VIRGIN AND RECLAIMED RUBBER REQUIRED FOR THE MANUFACTURE OF RUBBER GOODS.

For delivery to the Army and Navy during the calendar year 1918.

	Pounds.	
	Virgin.	Reclaimed.
Army requirements:		
For tires and tubes—		
Motor vehicles	35,965,167	8,057,454
Airplanes	315,236	26,198
For other articles—		
Aircraft production	[10]	[10]
Chemical warfare—		
Gas defense	2,308,000	102,000
Other defense	[11]	[11]
Construction Division	529,587	1,054,609
Edgewood Arsenal	[11]	[11]
Engineer	297,202	99,408
Medical	906,385	47,709
Ordinance—		
Nitrate Division	[11]	[11]
Other	57,919	96,531
Quartermaster	9,172,579	3,575,683
Signal Corps	9,122,403	2,706,198
United States Government explosives plants	[11]	[11]
Total Army requirements	58,674,478	15,765,790
Other requirements:		
Navy	2,846,000	214,000
Total requirements	61,520,478	[12]15,979,790

[10] See Signal Corps, and Tires and Tubes.
[11] Negligible.
[12] Other Government requirements, that is, the Railroad Administration and the Emergency Fleet Corporation, together with the requirements of Allied nations for war purposes, are estimated to have brought the total monthly war requirements up to 3,100 per month.

[7] The January, 1913, price of $1.10 may appear high when compared with the present price of crude rubber. But when it is remembered that rubber in May, 1911, only 19 months earlier, sold for as high as $2.85, the story of rubber prices becomes even more interesting.

[8] During the first six months of 1913 there passed through the London auctions over 11,000 tons of plantation rubber, as compared with about 7,000 for the corresponding period in 1912.

[9] The slight decreases in American consumption is another factor worthy of consideration in this connection. The tariff discussion in 1913 and the fear of removal of duties on rubber goods were the cause of much apprehension in the rubber industry and tended to make American manufacturers conservative in their purchases. Then there was the strike in the rubber factories of Akron, where about 50 per cent of the rubber imported into the United States is consumed. It is estimated that during the period of idleness accompanying the strike some 3,000 tons of rubber which would under normal conditions have been consumed in Akron, remained on the market. And, finally, there should be remembered the flood of the Ohio River in 1913, with the destruction of rubber property and the necessary curtailment of manufacturing operations.

It was estimated that about 35 per cent of these imports would be required for the governmental needs, leaving 65,000 tons to be allocated to the trade for civilian consumption. (See Table IV.) Allocations were made to manufacturers on the basis of seven-sixteenths of their 1917 consumption, and each manufacturer was instructed to apply for an import certificate entitling him, or others in his behalf, to receive an import license for his respective share.

The preliminary negotiations leading to the cutting of imports were held in April and the anticipation by the trade of some form of restriction stimulated buying. Thus large contracts were entered into for the immediate shipment of rubber to the United States in order that stocks might be accumulated before the expected restrictions went into effect. (See Table V.) The restriction of May 8 did not apply to shipments which had left foreign ports prior to that date, and since the time required for transporting rubber from primary markets to the United States is considerable, the actual imports during May, June, and July were much greater than the specified 25,000 tons. In fact, 55,000 tons of rubber entered American ports during these three months. The uncommon size of these imports is to be accounted for entirely by the stimulated purchases of the preceding April.

TABLE V.—STOCKS OF RUBBER IN THE UNITED STATES IN 1918.
[Long Tons.]

January 1—		
Held by importers	13,223	
Held by manufacturers	34,258	
Total stocks		47,481
July 1—		
Held by importers	19,349	
Held by manufacturers	38,024	..
Total stocks		57,373
October 1—		
Held by importers	12,664	
Held by manufacturers	48,355	
Total stocks		61.019

To prevent a speculative rise in rubber prices as a result of these restrictions, the War Trade Board on May 1 fixed the following maximum prices:

	Cents.
Pará upriver fine	68
Plantation—	
First latex crêpe	63
Smoked sheets, standard quality	62

These prices were supplemented on May 14 by maximum prices for other grades of crude rubber; while on May 29, June 13, July 2, and July 6, respectively, still further additions were made.[12] All prices were on the basis of c. i. f. New York.

The effect of the restrictions upon rubber prices soon became evident, and it later appeared that the fixing of maximum prices had been an unnecessary expedient. The curtailment of imports immediaetly made itself felt in the primary markets, where already the decreased consumption of other nations had had its effects. The further elimination of means of disposal naturally led to keen competition among the holders of the existing large stocks and prices tended to fall still further.

While the bulk of the market sales for rubber during the latter six months of 1918 was below the quoted maximum prices shown in Figure 2, a small amount of free rubber not subject to War Trade Board allocation which was still on the market was sold at a level distinctly higher than restricted rubber. It is interesting, also, to note that sales of allocated upriver fine Pará rubber were made in September at 58 cents (maximum fixed price being 68 cents), while at the same time plantation first latex crêpe sold for 37 cents (maximum fixed price being 63 cents).

This anomaly can be explained in part by the allocating to Brazil by the War Trade Board substantially as much rubber as to the plantations, although the production of the former is but one-sixth of the latter. There resulted, accordingly, a heavy overproduction of the plantation variety and keener bidding at plantation markets for the right to ship to American ports. It should be added also that the maintenance of relatively normal values by Brazilian rubber was in part to be accounted for by the stabilizing control over its price by the Bank of Brazil.

The amount of rubber to be licensed for import was changed on November 22 to 32,500 tons for the last quarter, an increase of 7,500 tons over the previous maximum. Restrictions as to the quantity of crude rubber which might be licensed for import from overseas were further modified on December 12. After that date licenses to import crude rubber from overseas were issued without limit as to quantity, provided applicants conformed with the existing regulations of the War Trade Board. Maximum prices and allocation features were also withdrawn at the same time, although consignments to The Rubber Association were still required and the usual guarantees demanded. That the withdrawal of these regulations had little effect upon crude rubber prices is made evident in Figure 2.

[12] A full list of the types of rubber upon which prices were fixed, together with the respective price for each, is presented in "Government Control Over Prices," Bulletin No. 3, War Industry Board.

Standards Recommended by the Tire and Rim Division of the S. A. E.[1]

THE STANDARDS COMMITTEE OF THE S. A. E. held a meeting June 23, 1919, to pass on the work accomplished by the various divisions of the Society. The following report of the Tire and Rim Division has been approved by the Standards Committee, the Council, and the Society at the semi-annual meeting and is to be submitted to a letter ballot of the voting members before final adoption as standards of the Society.

SOLID TIRE SIZES.

This subject was presented at the February meeting of the Society, but was referred back to the Division pending further consideration by the National Automobile Chamber of Commerce and the Rubber Association of America. As these organizations have definitely adopted the following solid tire sizes, the Division recommends that these sizes be adopted by the Society.

[1] From "The Journal of the Society of Automotive Engineers," August, 1919.

The complete table with metric equivalents follows:

Inches.	Mm.	Inches.	Mm.
32x3	75/660	36x6	150/762
32x3½	90/660	40x6	150/864
34x3½	90/711	36x7	176/762
36x3½	90/762	40x7	175/864
32x4	100/660	36x8	200/762
34x4	100/711	36x10	250/762
36x4	100/762	40x10	250/864
34x5	125/711	40x12	300/864
36x5	125/762	40x14	350/864
40x5	125/864		

In presenting this report, C. C. Carlton said that these sizes proposed for S. A. E. Standard are an amplification of those which were adopted previously by the Society and the War Industries Board. They were recommended by twenty members of the Tire and Rim Division and include only the present standard sizes and their metric equivalents.

CARRYING CAPACITY OF SOLID TIRES.

This subject has been before the Tire and Rim Division and the Truck Standards Division of the Society for some time, and progress has necessarily been slow as the subject is important from the viewpoints of legislation, truck manufacture and operation and tire manufacture.

The Tire and Rim Division has approved the following recommendation in the belief that it represents good engineering practice and presents it for adoption as S. A. E. Standard:

Solid Tire Width.	Up to and Including 36-in. Diameter. Pounds.	40-in. Diameter. Pounds.
3	1,000	.....
3½	1,300	.....
4	1,700	.....
5	2,500	2,600
6	3,300	3,500
7	4,200	4,500
8	5,200	5,600
10	7,000	7,500
12	.....	9,500
14	.....	11,500

In presenting this recommendation, Mr. Carlton said that many of those present would remember that when a recommendation on the subject of carrying capacity of solid tires was made by the Tire and Rim Division some years ago it was voted down at a society meeting after having been approved by the Standards Committee; that the last proposed standard is the result of 3 or 4 years of careful experimentation by the rubber companies, and that he believed it deserved the support of the Society; that every manufacturer of solid tires is now in favor of this table, and he hoped the proposal would be approved because it had been difficult to reach a compromise that everyone was satisfied with. As he understood the matter, the carrying capacities recommended in the Division report would be printed in the price-lists of all manufacturers of solid tires, and were in fact being so printed by most of them.

THE DISCUSSION.

L. R. DAVIS:—These are carrying capacities that we have been using for the past 2 years, except that we have a 3¼-inch size instead of 3½.

C. C. CARLTON:—I would like to ask a question of the rubber men present. It is my understanding that solid tires will not be guaranteed for replacement by any manufacturer if they are subjected to greater carrying loads than those given in the report. Is that correct?

Mr. DAVIS:—That is correct.

RUSSELL HOOPES:—I was a member of the Division when we had the discussion years ago, and it seems to me, now that the tire companies have agreed on this, that it would be a pity not to put it through as an S. A. E. Standard.

SOLID TIRES FOR SINGLE AND DUAL WHEELS.

The Division recommends the following definite front and rear wheel application of the proposed solid tire sizes as supplementary to the proposed standard list of sizes:

TIRES FOR SINGLE WHEELS.

32x3	36x4
32x3½	34x5
34x3½	36x5
36x3½	36x6
32x4	36x7
34x4	....

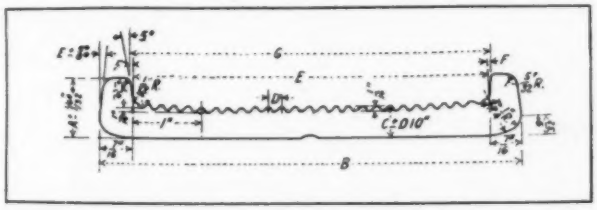
TIRES FOR DUAL WHEELS.

36x4	36x8 (Single tire fits 36x4 dual wheel)
36x5	36x10 (Single tire fits 36x5 dual wheel)
40x5	40x10 (Single tire fits 40x5 dual wheel)
40x6	40x12 (Single tire fits 40x6 dual wheel)
40x7	40x14 (Single tire fits 40x7 dual wheel)

Mr. Carlton explained that this "application" table includes the solid tire sizes recommended for standard. They are, however, classified in this table to indicate preferable installation for front and rear wheels. Such application would, he said, work no hardship upon truck manufacturers and would greatly assist wheel makers who want standards to work to.

BASE BANDS FOR SOLID TIRES.

As the proposed solid tire standard includes a 3-inch size, the Division recommends that the 3-inch base band be included in the present S. A. E. Standard for base bands for solid tires.



STANDARD BASE BAND FOR SOLID TIRES.

Base Band Size	A	B	Limits of R	C	[2]Corrugations. No.	[2]Corrugations. D	E	G	F
3	23/32	3¼	±1/32	5/16	16	0.181	2 20/32	3 1/16	5/64
3½	3/4	4⅛	±1/32	11/32	18	0.191	3 7/16	3 5/16	1/16
4	25/32	4⅛	±1/32	3/8	20	0.196	3 59/64	4 1/16	9/128
5	27/32	5⅛	±1/32	7/16	26	0.189	4 59/64	5 1/16	9/128
6	27/32	6⅛	±1/32	7/16	32	0.185	5 59/64	6 1/16	9/128
7	27/32	7⅛	±1/32	7/16	36	0.192	6 59/64	7 1/16	9/128
8	7/8	8⅛	±3/64	7/16	40	0.196	7 27/32	8	5/64
10	7/8	10⅛	±3/64	7/16	50	0.196	9 27/32	10	5/64
12	7/8	12⅛	±3/64	7/16	60	0.197	11 27/32	12	5/64
14	7/8	14⅛	±3/64	7/16	70	0.197	13 27/32	14	5/64

Note—The above values correspond to those adopted by the War Service Committee of the Rubber Industry of the U. S. A.

Chairman Bachman stated that at the annual meeting in February this list was adopted and that the proposed action contemplated adding only the dimensions for the 3-inch band size which corresponds to the 3-inch tire just approved.

SOLID TIRE AND WHEEL DIAMETERS, WHEEL CIRCUMFERENCES.

In the past there has been some confusion owing to the inclusion of general information in this standard. In view of this the Division has revised the standard so as to include data on the standard solid tire diameters only, and therefore recommends the following revised standard for adoption:

Nominal Outer Diameter of Tires. In.	Nominal Outer Diameter of Tires. Mm.	Actual Diameter Over Steel Bands. In.	Actual Diameter Over Steel Bands. Mm.	[3]Actual Circumference Over Steel Bands. In.	[3]Actual Circumference Over Steel Bands. Mm.
32	810	26	660.4	81 11/16	2074.7
34	860	28	711.2	87 31/32	2234.3
36	910	30	762.0	94 1/4	2393.9
40	1010	34	863.6	106 13/16	2713.1

Mr. Carlton explained that this recommendation involves merely a revision of page 8, S. A. E. Handbook, Vol. 1, adding no new information and eliminating mention of sizes other than those now adopted as S. A. E. Standard.

SOLID TIRE SECTIONS.

The Division recommends that the 3-inch solid tire sectional area be included in the present standard so that it will conform to the proposed solid tire standard.

Solid Tire Widths, In.	[4]Minimum Total Sectional Area of Rubber, Square Inches.
3	....
3½	6.75
4	7.75
5	10.75
6	13.75
7	16.75
8	19.75
10	25.75
12	31.75
14	37.75

Note—The above values correspond to those adopted by the Solid Tire Division, War Service Committee of the Rubber Industry of the U. S. A.

[2]Either mill corrugated or dovetail facings may be used.

[3]These felloe circumferences are given with the tolerances neglected. The tolerances are shown at the bottom of page 8a, S. A. E. Handbook, Vol. I.

[4]Includes both hard and soft rubber.

SECTION DIMENSIONS OF SINGLE AND DUAL SOLID TIRE WHEELS.

The Division recommends that the steel band thickness for the felloe bands for the 3½ and 4-inch tires be changed from ¼ to 5/16-inch. This action is taken in view of the difficulty experienced by wood wheel manufacturers in having the bands of lighter section stretch on application to the wood wheels, thus leaving the felloe bands oversize after application. The revised standard reads as follows:

	Nominal Tire Widths.		Width of Felloe and Band.		Thickness of Steel Band.		Felloe Thickness.[5]	
	In.	Mm.	In.	Mm.	In.	Mm.	In.	Mm.
Single wheels	3	75	2½	57	¼	6.35	1½	38
	3½	90	2¾	70	5/16	7.93	1½	38
	4	100	3¼	83	5/16	7.93	1⅝	41
	5	125	4¼	108	⅜	9.52	2	51
	6	150	5¼	133	⅜	9.52	2	51
	7	175	6¼	159	⅜	9.52	2	51
Giant single to fit dual	8	200	8	203	⅜	9.52	2	51
	10	250	10	254	⅜	9.52	2	51
	12	300	12	305	⅜	9.52	2	51
	14	350	14	356	⅜	9.52	2	51
Dual	4	100	8	203	⅜	9.52	2	51
	5	125	10	254	⅜	9.52	2	51
	6	150	12	305	⅜	9.52	2	51
	7	175	14	356	⅜	9.52	2	51

Mr. Carlton stated that this proposed change called for a steel felloe band thickness for the 3½ and 4-inch sizes of 5/16-inch. This has the unanimous approval of all the wood wheel builders, their contention being that after years of experience it has been found that it is impossible to hold wheels under proper compression with the ¼-inch thick steel band, particularly in the case of the larger diameter wheels.

The table is enlarged to include all present-day information. A slight change in the list of minimum thicknesses of felloe is recommended, to place the minimum thickness of felloe for dual wheels on a 2-inch basis. The minimum thickness of felloe for the 4-inch single size has been changed to 1⅝ inches. A resolution was passed at a meeting of the Automotive Wood Wheel Manufacturers Association recently, asking that this change be made in the S. A. E. Standard.

No tolerance has been recommended by the Division in connection with felloe thickness. In machining wood it is necessary to have some tolerance. This matter has been very thoroughly discussed by wood wheel makers. A 2-inch plank, say, is used green in the beginning. When it is dry and the necessary planing has been done, it is next to impossible to get a full 1⅝-inch thickness. The wood wheel manufacturers request that in addition to this table a thickness tolerance of ± 1/16-inch be adopted for all sizes.

PNEUMATIC TIRES AND RIMS FOR PASSENGER CARS AND COMMERCIAL VEHICLES.

The Division recommends the following revised list of pneumatic tire and rim sizes for passenger cars and commercial vehicles:

Nominal Tire and Rim Sizes.		Oversize Tire.		Tire-Seat Diameter. (Rim).		Type of Rim.
In.	Mm.	In.	Mm.	In.	Mm.	
30x3½	90/585	31x4	105/585	23	585	Clincher
32x3½	90/635	33x4	105/635	25	635	Straight side
32x4	105/610	33x4½	120/610	24	610	Straight side
33x4	105/635	34x4½	120/635	25	635	Straight side
32x4½	120/585	33x5	135/585	23	585	Straight side
34x4½	120/635	35x5	135/635	25	635	Straight side
36x6	150/610	38x7	175/610	24	610	Straight side
38x7	175/610	40x8	200/610	24	610	Straight side
40x8	200/610	....	.....	24	610	Straight side

Note—These tire and rim sizes conform to the joint recommendation of the National Automobile Chamber of Commerce (Bulletin No. 267, February 18, 1919) and the Rubber Association of America, which contemplates that they will be the only sizes used by automobile manufacturers after January 1, 1920.

[5]The tolerance for the felloe is ± 1/16-inch.

WOOD FELLOE DIMENSIONS FOR PNEUMATIC TIRE RIMS.

The Division recommends that the dimensions for the sizes marked with an asterisk be included in the present standard as given in the following table:

WOOD FELLOE DIMENSIONS.

Nominal Tire and Rim Size.	Width.	Depth.
30x3½	1½	1¼, +1/16, —0
32x3½	1½	1¼, +1/16, —0
*32x4	1¾	1¼, +1/16, —0
33x4	1¾	1¼, +1/16, —0
*32x4½	2⅛	1¼, +1/16, —0
34x4½	2⅛	1¼, +1/16, —0
36x6	3¼	1⅝ ± 1/16
38x7	3 29/32	1⅝ ± 1/16
40x8	4⅛	1⅝ ± 1/16
*44x10	5¼	1⅝ ± 1/16

Dimensions in inches.
Note—The above values correspond to those adopted by the Automotive Wood Wheel Manufacturers' Association.

CARRYING CAPACITIES AND INFLATION PRESSURES OF AUTOMOBILE PNEUMATIC TIRES.

The Division recommends for S. A. E. Standard the following revised and expanded table of carrying capacities for fabric and cord passenger tires and for cord commercial vehicle tires.

	Fabric Tires for Passenger Cars.		Cord Tires for Passenger Cars.		Cord Tires for Commercial Vehicles.	
Tire Size.	Maximum Load Per Tire.	Corresponding Air Pressure.	Maximum Load Per Tire.	Corresponding Air Pressure.	Maximum Load Per Tire.	Corresponding Air Pressure.
3	375	45	400	40	...	...
3½	570	55	600	50	...	...
4	815	65	850	60	850	70
4½	1,100	75	1,200	70	1,200	75
5	1,500	85	1,700	80	1,700	80
6	...	..	...	..	2,200	90
7	...	..	...	..	3,000	100
8	...	..	...	..	4,000	110
[6]9	...	..	...	..	5,000	120
[6]10	...	..	...	..	6,000	130

SOLID AND PNEUMATIC TIRE EQUIPMENT FOR COMMERCIAL VEHICLES.[7]

As it is desirable for all tire manufacturers to make identical tire equipment recommendations, this matter has been the subject of frequent discussions, and at this time the Division feels that it can present a table which will more or less summarize the result of past activities and represent good practice.

In this table in the columns headed "Maximum Weight per Wheel" the figures given are the result of very careful investigation as to actual weights of trucks in use at the present time. It was found that trucks of light weight capacity did not deviate much on the average weight figures, so that it is felt that while the tire equipment stated for each weight truck will not be 100 per cent correct, it will cover more than 95 per cent of the cases.

	Front.			Rear.		
Size Truck.	Maximum Wt. per Wheel.	Pneu. Tire Size.[8]	Solid Tire Size.	Maximum Wt. per Wheel.	Pneu. Tire Size.[8]	Solid Tire Size.
¾	800	33x4 or 35x5	None	1600	35x5	None
1	1000	34x4½	34x3½ or 36x3½	2100	36x6	34x5 or 36x5
1½	1200	34x4½	34x3½ or 36x3½	3000	38x7	36x6
2	1500	35x5	34x4 or 36x4	3500	40x8	36x7
2½	1800	36x6	36x5	4000	40x8	36x7
3	2000	36x6	36x5	5200	44x10	36x5D 36x10
3½	2100	36x6	36x5	5700	44x10	40x5D 40x10
4	2300	38x7	36x6	6500	48x12	40x6D 40x12
5	2700	38x7	36x6	7800	48x12	40x6D 40x12

[6]The loads and pressures for these sizes are S. A. E. recommended practice only.

[7]This report has been referred back to the Tire and Rim Division. These data are submitted, however, as general information only, as representing good present-day practice.

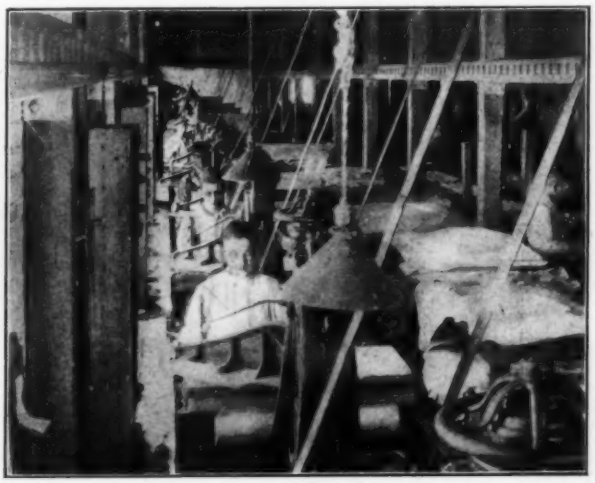
[8]All pneumatic tires to be of cord construction.

The Manufacture of Rubber and Fabric Shoes.

India rubber is the great supplanter. Just as rubber hose dispossessed leather hose, the rubber bottle the superheated brick, and the rubber tire that of wood and iron, so rubber and fabric shoes are winning against leather in the footwear field. In this crusade the so-called "Tennis" shoe was and is the entering wedge.

THE TENNIS SHOE, sand-shoe, or "sneaker," with its variants for yachting, gymnasium, basket-ball, etc., was for years a minor part of the rubber footwear business. It was not esteemed either by maker, marketer or user. Oftimes it was made of the cheapest materials, hastily thrown together and the product stored in bins by the retailer to be pawed over by the bargain hunters and the slip-shod.

DIEING OUT TENNIS TOPS.



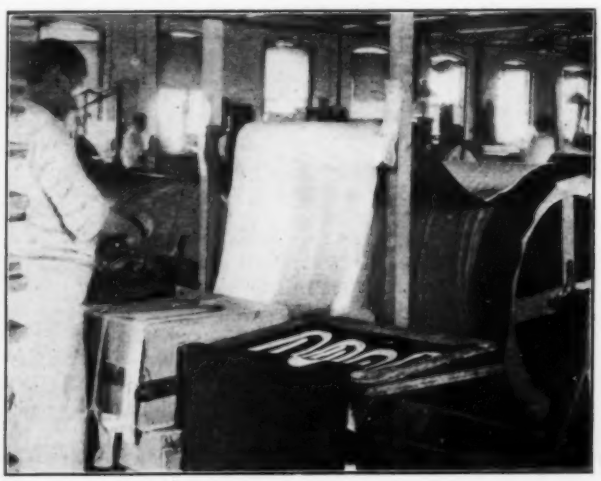
DIEING OUT LEATHER INSOLES.

For many years the bulk of the tennis goods showed black soles. This was simply because the old-time dry-heat compounds called for litharge to effect the cure, the heat being some seven hours. White soles were sometimes brought out by using zinc sulphide, and some very excellent tans were produced. With the success of the pressure cure and the use of accelerators former handicaps were removed and a much more varied line of goods produced. The quality was also notably increased.

It therefore has come about that "Keds" and their analogs, while they are still tennis shoes, show a vast improvement over their prototypes of the dry-heat days. A tennis shoe to-day, of the best type, has all of the lines of the best of leather footwear. It has a solid rubber heel, a counter that is generous and strong, and inside of the rubber outer sole is a fiber sole, in place of the time-honored rag-filler, and over this a leather inner sole and a kid heel-piece. The stitching, the lacings, the celluloid-covered eyelets, the finish, all are first-class and really elegant.

The fact is, the tennis shoe is to-day an important factor in the rubbershoe factory. Hence the laboratory has taken up the question of stocks and evolved for sole and heel those that are light and yet wear-resisters. For cements, thanks to mixed catalyzers, they have so far beaten the old "yellow

STITCHING THE UPPERS.



CUTTING FOXINGS.

cement" that the workmen would use soft soap as a sticker rather than return to it. In the handling of fabrics, drying, brushing, singeing, and often cravenetting, the greatest care is taken and the latest methods employed.

The beginning of tennis shoe making, next to the laboratory compounds, is the last making. Under expert designers maple lasts are evolved and turned out by thousands on automatic last lathes. Then pattern cutters design the patterns. For hand work they are of thin sheet metal or heavy cardboard; for dies they are of metal.

Aside from the regular equipment of rubber washers, vacuum dryers and mixers, are special soling calenders with engraved rolls for running the soles. There are also tubing machines for forcing heel stock and presses for forming and semi-vulcanizing heels.

MAKING THE UPPERS.

The manufacturer begins with cutting the fabric for the tops or uppers. This is accomplished by means of cutting dies of suitable shape for the various cloth parts. The fabric having been carefully arranged in the form of a slab about an inch thick, is

THE OPERATION OF LASTING.

drawn progressively through the power-cutting-press over a wooden cutting-block. The operator adjusts the proper die and by pressure on the foot-treadle of the machine stamps out with great rapidity and accuracy pieces of the required size and form.

The lower edges of the vamp or upper and its lining are united to the rubber sole in the finished shoe by rubber cement. Therefore these parts go to the cementers who apply the cement required. The work is regulated by the use of metal forms or patterns to locate properly the cement coating. This operation is a particular one from the standpoint of neatness as any spots of misapplied cement will show on the finished product as disfiguring indelible marks.

The cemented vamps and linings together with the other cloth pieces such as tongues, etc., are delivered to the stitching room, where, with power sewing-machines, women operators skilfully assemble and sew the parts together in the form of uppers, preparatory to the operation of lasting. The tongues are bound with tape and inserted, and by special machines the eyelets and facing studs are applied. The complete upper is then laced up on a lacing machine and is ready for delivery to the assembly room.

LEATHER AND RUBBER PARTS.

The leather inner sole is died out by cutting dies in a light power press, known as a clicking machine, operating with a quick blow controlled by a foot treadle.

CEMENTING AND DRYING CEMENT ON CONVEYOR BELTS.

The thin strip of rubber uniting the sole and upper all around the edge of the shoe, is called foxing. The rubber stock from which it is made comes to the cutting room in the form of a long sheet wound with a cotton liner on a roll, the cutter separates the liner from the rubber sheet and draws it over the cutting-block where, by means of a hand-die and raw-hide mallet, he cuts the foxing in curved forms and places it in cloth-leaved books for the maker's use.

DETAILS OF MAKING.

LASTING.

In the assembly of parts the first operation is that of lasting the laced vamp tightly over the shoe last and attaching it over the

ATTACHING THE FOXING.

edges of the inner sole by the adhesion of its cemented edges. The sole at this stage of the process consists of two pieces, the inner part of leather cemented to a rubber and fiber combination stiffening piece.

CEMENTING.

The lasted shoe is given a liberal coating of rubber cement, brush-spread over the bottom and allowed to dry thoroughly before the application of the rubber parts. By means of a conveyor belt, the uncemented shoes reach the cementer and leave

ATTACHING THE OUTSOLE.

him continuously, drying as they travel toward the next operation.

FOXING.

The finishing strip which encircles the shoe and receives the skived edge of the rubber sole is next put in place, together with a rubber toe piece, in case one is used. The work is sometimes called uppering the shoe.

SOLE CUTTING.

The rubber stock for outer soles is run in sheet form by a special calender provided with a knurled roll to impress the design for sole and heel surface and trade-mark in the shank. In

THE OPERATION OF ROLLING.

the form of short sheets the calendered soling stock is fed through the sole-cutting machine by which the sole is cut with skived edges, the form and size being controlled by the particular sheet-metal pattern adjusted to the machine.

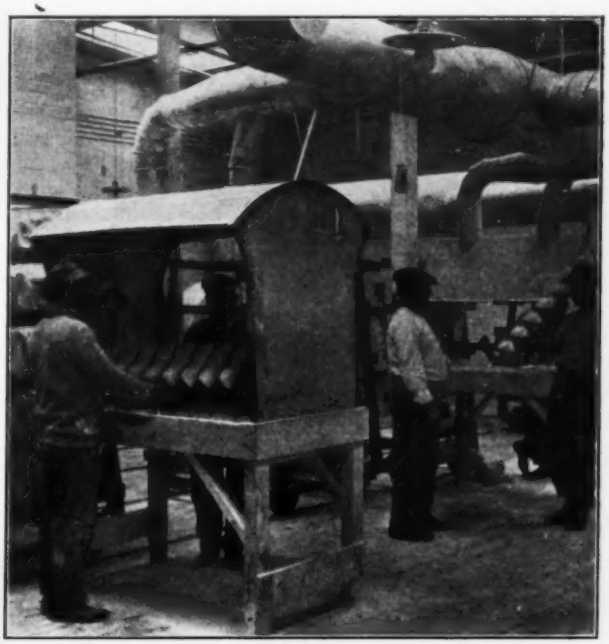
OUTSOLING.

A part of this operation is done by hand and a part by machinery. The rubber sole must be accurately placed as to width and length and is set as viewed from above. If hand-rolling only is practiced, the work of soling is all done by one operator using an ordinary hand-roller and a stitcher to turn up the skived edge of the sole and unite it perfectly to the foxing. Otherwise the shoe is taken to a rolling machine which rolls the sole and presses it down firmly.

For the work of rolling, automatic machines are used which, although complicated, are simple to handle. The worker sets the shoe in place, moves a switch, and the machine carries the shoe under heavy rollers and back again. Most machines are double so that the operator can set one shoe for each movement of travel. In this way an operator may roll as high as 30,000 to 40,000 shoes in one day.

EDGING.

In team work it is customary to employ a power edging machine which comprises a motor, a rubber hammer, and a steel



STARCHING WHITE TENNIS SHOES.

edger. The machine is constructed so that the hammer is driven at a high speed with about a half-inch stroke. The operator holds the shoe up against the hammer and the action of the machine welds the sole down firmly. The edger works much like the hammer and the worker holds the shoe so that the sole is trimmed and the foxing stitched at the same time.

FINISHING.

Clean-finish white tennis shoes are sometimes dusted with starch. They are arranged on trays and placed in a chamber provided with means for carrying away the dust from the workers . Colored shoes receive a brush coat of special vulcanizing varnish on the soles.

CURING.

Vulcanizing is effected, as a rule, in pressure-cure vulcanizers. Following this come stripping off the lasts, inspection, tying, sorting, and boxing in cartons usually made on the premises.

DURING THE MONTH OF FEBRUARY, 1919, 745,906 POUNDS OF plantation rubber were exported from British North Borneo.

What the Rubber Chemists are Doing.

SYNTHESIS OF CAOUTCHOUC.

THE FOLLOWING ABSTRACT from the "Journal of the Society of Chemical Industry," volume 38, 428A, June 30, 1919, summarizes an article by H. Standinger.[1] In polymerizing isoprene, compounds of the terpene series are simultaneously produced, in quantities varying with the conditions of polymerization, and these influence the character of the final product. Synthetic preparations, although very similar to the natural product, are not yet identical, as has been shown by Stemmig.[2]

In order to obtain a tougher synthetic rubber attempts have been made to mix the isoprene with styrol, linseed oil, and especially tung oil, but all the products are more or less sticky. The ordinary inorganic and organic peroxides, such as sodium peroxide and benzyol peroxide, do not accelerate the polymerization to such an extent as pure oxygen, but, like ozone, are used in technical processes as catalysts. The varieites of rubber obtained by polymerizing butadiene and dimethyl-butadiene differ in character from the isoprene product, and methylcaoutchouc from dimethylbutadiene is now an important synthetic product in Germany. The yield of isoprene from oil of turpentine is increased by carrying out the process *in vacuo*.[3] By using limonene instead of oil of turpentine the yield is increased from about 25 per cent to 65 per cent. Essential oils, however, cannot be obtained in sufficient quantity to be practicable sources of isoprene. The production of butadiene from phenol and of isoprene from cresol would be too expensive, while these substances are required for other purposes. Coke-oven gases are a cheaper source of benzene, and synthetic rubber has been successfully prepared in Germany by converting this benzene successively into cyclohexane, chlorocyclohexane, and tetrahydrobenzene, which, on heating, gives butadiene and ethylene. The amount of butadiene and isoprene in coal tar would only furnish a small fraction of the amount required, while the conversion of alcohol into butadiene would be too expensive, apart from the fact that the most favorable conditions for the reactions have yet to be discovered. If impure butadiene hydrocarbons are used sticky products are formed. American petroleum contains at least one per cent of a mixture of the three pentanes (boiling at 9, 30 and 38 degrees C.), which at the present time is practically a worthless constituent of the gases. About 370,000 tons per annum of these compounds would be available in the United States. It has been shown by Holt[4] that they could be converted into isoprene, but this synthesis would be practicable only in America. Acetone prepared from acetylene was used in Germany during the war as the source of synthetic rubber. It was reduced by means of aluminum to pinacone, which was then converted into dimethyl-butadiene and dimethylcaoutchouc. The plant is capable of producing about two thousand tons of rubber per annum, but under normal conditions the process would be too expensive.

MECHANICAL COAGULATION OF RUBBER.

A current of air is passed over the surface of the warm latex, the temperature of which is raised either by applying heat at the bottom of the vessel or by preheating the air. In order to avoid the formation of a skin which would prevent the action of the air on the deeper layers of latex, the mass is kept stirred by rocking the vessel. The crêpe obtained from the final coagulum has a light color, and in quality appears comparable with rubber prepared by the customary process of coagulation with acetic acid. ("Journal of the Society of Chemical Industry," May 31, 1919.)

EFFECT OF EXPOSURE TO WEATHER ON RUBBER GAS-MASK FABRICS.

A paper by G. St. J. Perrott and A. E. Plumb in "The Journal of Industrial and Engineering Chemistry," May, 1919, pages 438-443, reports the results of their investigations on the effect of exposure to weather on rubber gas-mask fabrics.

Fabrics of different manufacture and consisting of finely-woven cotton sheeting covered with a rubber layer from 0.01 to 0.025-inch thick, deteriorated very slowly over a period of 100 days. There was a general relation between the amount of acetone extract and the permeability, and deterioration was more rapid in the summer months than in winter. Fabrics exposed rubber side downwards showed no appreciable deterioration over the whole period; those exposed rubber side upwards, but shielded from ultra-violet light, deteriorated at about the same rate as those exposed to the direct rays of the sun. There was no apparent relation between the results of weather aging and an accelerated aging test at 130 degrees C. The tensile strength of all the fabrics decreased by 15 per cent during the exposure. Both the fabric and rubber rotted when exposed to high concentrations of phosgene for 15 hours. Analysis of the fabrics indicated that over 10 per cent of bitumen was undesirable and that as high as 20 per cent of carbon tended to preserve the fabric, especially when exposed to direct sunlight. Fabrics with a high percentage of gum (rubber) were more resistant than those containing a large amount of filler.

X-RAY EXAMINATIONS.

At a joint session of the Faraday and Rontgen Societies, April 29, 1919, in the rooms of the Royal Society, Burlington House, London, the subject of the examination of materials by X-rays was discussed from an engineering standpoint in a series of papers by noted authorities.

Quoting from abstracts of these papers[1]:

It is now known for certain that X-rays are nothing but ordinary light waves of very small wave length. This fact explains their extraordinary property of penetrating all substances, more or less, and it also follows that, generally speaking, the smaller the wave length, the greater the penetrating power. It is therefore the production of the so-called "hard" rays, those of exceedingly small wave length, that principally interests the engineer. But such rays require a very high tension discharge to produce them, and this, coupled with the limitation which the intense local production of heat places in the way of making tubes which can absorb a great deal of energy, is the principal difficulty in the way of practical progress. Up to the present it is hardly a workshop proposition to examine more than an inch or two of steel (although it is claimed that 4 inches have been penetrated)—and even so, considerable exposure is necessary, some 250 seconds for 35 mm., but as much as 2,000 seconds for 40 mm., according to M. Pilon and Mr. Geoffrey Pearce.

The most powerful tubes at present used require a voltage of more than 100,000, and they absorb some 50 kw. It is therefore obvious that further progress will call for all the skill and knowledge at the disposal of the physicist and electrical engineer.

S. A. Pollock, of the British Post Office, stated that for the examination of soft materials like gutta percha, in which impurities were often introduced, and for discovering defects in the lead sheaths of underground cables, the method had been found extremely useful.

GERMAN EBONITE SUBSTITUTE.

A new ebonite substitute known as "Hornite" has been introduced by The Hornite Works Joint Stock Co., Düsseldorf, Germany. Hornite is prepared from industrial residues and in

[1] "Schweiz Chemische Zeitschrift," 1919, Volume I. pages 1-5, 28-33, 60-64.
[2] "Journal of the Society of Chemical Industry," 1914, page 267.
[3] "Journal of the Society of Chemical Industry," 1911, page 1023.
[4] "Journal of the Society of Chemical Industry," 1914, page 364.

[1] "The Electrical Review," June 6, 1919, page 679.

appearance and wearing qualities not only replaces ebonite, but, owing to its extraordinary cheapness and special qualities, may displace ebonite in the market. It may be used for practically every purpose for which ebonite is adapted. ("Electrical Review," London.)

ANALYSIS OF VULCANIZED RUBBER.

THE FOLLOWING METHODS for the analysis of vulcanized rubber are by J. A. S. Morrison in "The India Rubber Journal," June 21, 1919.

RUBBER RESINS.

Rasp the sample into small pieces, weigh out four grams, and extract with acetone in a Soxhlet extractor for two days. Dry the extract at 100 degrees C., and weigh. This extract contains rubber resins and free sulphur, the latter being estimated in the extract as described later. Total extract minus free sulphur gives rubber resins. Reserve the residue from the extraction for the determination of the rubber substitutes.

MINERAL MATTER.

One or two grams of the original sample is boiled with 50 cc. nitrobenzene in a flask fitted with an air reflux condenser; cool and wash into a 300-cc. tall beaker with a mixture of two volumes of sulphuric ether and one volume of ethyl alcohol; dilute to about 250 cc. with this mixture; stir and allow to stand over night to settle. Viscous deposits are due to insufficient ether, and more should be added if these occur. Filter the insoluble matter on a tared filter, dry and weigh. This gives organic matter insoluble in nitrobenzene plus mineral matter. The contents of the tared filter are washed with warm dilute hydrochloric acid. Wash the acid out with water, dry and weigh. Finally ash the paper and residue and weigh. Ash plus loss due to hydrochloric acid washing gives total mineral matter. The extraction with hydrochloric acid is to extract carbonates as such.

The difference between the total nitrobenzene residue on the tared filter and the total mineral matter gives the organic matter insoluble in nitrobenzene. Carbon, if used as a filling, will be included in this figure.

FREE SULPHUR.

Take acetone extract (rubber resins) in flask, moisten with water and cautiously add 25 cc. fuming nitric acid, cooling the flask in ice. Gently warm and finally digest on steam bath, using a funnel as cover. When action is complete wash into a porcelain dish with a few cc. of fuming nitric acid, and evaporate off all the acid. All the sulphur is now converted to sulphuric acid. Intimately mix the mass with five grams of a mixture of three parts sodium carbonate and two parts of potassium nitrate, moisten slightly with water and mix well. Cover with a large dish and heat over a low flame till white. Cool and take up with concentrated hydrochloric acid, evaporate to dryness twice to precipitate silica, and finally dissolve in dilute hydrochloric acid, filter and precipitate as barium sulphate. Filter, dry weigh and calculate as free sulphur.

OXIDIZED OIL RUBBER SUBSTITUTES.

The residue from the acetone extraction in the determination of rubber resins is digested with 100 cc. of approximately half normal alcoholic potash for four hours at 60 to 70 degrees C. Pour off through a filter and digest residue twice with warm alcohol. Mix filtrate and alcoholic washings and evaporate nearly all the alcohol. Take up residue in a little cold water, transfer to a separatory funnel, acidify and remove fatty acids with ether. Evaporate ether extract to dryness and weigh. This gives fatty acids of oxidized oils, and is taken as the percentage of rubber substitutes.

VULCANIZED RUBBER.

This is obtained by subtracting the sum of the other determinations from 100.

TOTAL SULPHUR.

The method is the same as that described under free sulphur, except that the original rasped sample is used. The difference between total and free sulphur gives combined sulphur, but this is included in vulcanized rubber and seldom separately expressed.

Ash is often determined by ashing in a porcelain crucible, recarbonating with ammonium carbonate solution, and finally igniting at a gentle heat. The ash is generally lower than total mineral matter because some mineral matters do not recarbonate easily. Nevertheless it serves as a useful check on the figure for mineral matter.

CHEMICAL PATENTS.

PROCESS OF PRODUCING ISOPRENE. (O. Graul and G. Hanschke. United States patent No. 1,298,929.)

VULCANIZING RUBBER MIXTURE suitable for repairing punctures in tires, consists of crude rubber, one pound; gasoline, three pints; litharge or red lead, seven ounces; lead acetate, two ounces; sulphide of mercury, seven ounces; asphalt, three ounces, and sulphur, 2½ to five per cent of the weight of the rubber. (W. T. Hale, Dodge City, Kansas. United States patent No. 1,300,263.)

METHOD OF TREATING VULCANIZABLE PLASTICS by first applying an internal vacuum, and then vulcanizing under external heat and pressure, the vacuum being continued during that portion of the application of the vulcanizing temperature during which vapors or gases are given off by the rubber. (Raymond B. Price, Mishawaka, Indiana, assignor by mesne assignments to The Goodyear's Metallic Rubber Shoe Co., Naugatuck, Connecticut. United States patent No. 1,309,485.)

DECORATED RUBBER ARTICLES made by compounding a mass of unvulcanized rubber with a light sensitive material, forming the compound into the article desired, and subjecting the surface of the article to light rays conforming with the desired design, and then subjecting the article to heat. (Albert A. Somerville, Flushing, N. Y., assignor to New York Belting & Packing Co., New York City. United States patent No. 1,309,703.)

THE UNITED KINGDOM.

DEVULCANIZING WASTE RUBBER is effected by treatment with a vulcanizing accelerator in the presence of a reagent capable of removing the sulphur as it is liberated. Preferably, uncombined sulphur is first removed; the rubber should be in a finely divided state, for example, in solution; and no moisture should be present. A temperature of 170 to 180 degrees C. is preferable. Examples of accelerators used are aniline, piperidine and paramido-dimethyl-aniline. (D. Spence, Norwalk, Connecticut, U. S. A. British patent No. 126,397.)

SURGICAL DRESSINGS made up in the form of candles with wicks so that the material is readily melted and applied. The candles are coated with paraffined paper or with a solution of lacquer, wax, resin, cellulose acetate. Suitable additions to the paraffine are rubber or latex, antiseptics or medicaments. (P. Ehrhardt, 95 rue Jouffroy, Paris. British patent No. 126,501.)

VULCANIZATION ACCELERATORS. Double compounds of nitroso-dimethyl-aniline or its homologs with aromatic bases are used as accelerators in the vulcanization of rubber. Compounds containing two molecules of nitroso-dimethyl-aniline and one molecule of aniline, dimethyl-aniline, ortho-toluidine, diphenyl-amine, or alpha-naphthylamine are given by way of example. (J. F. B. van Hassett, 92 Almondestraat, Rotterdam. British patent No. 126,606.)

CHLORINATING INDIA RUBBER. In the production of a substance for use as a substitute for celluloid, leather, or the like, by

treating a solution of rubber with chlorine, or bromine and chlorine, the rubber is dissolved in benzene or a homolog. Chlorine is passed through the solution until the rubber has taken up approximately twice its weight of chlorine. The presence of catalysts is avoided. The hydrochloric acid produced is removed by heating or neutralized, for example, by ammonia or lime. (H. M. Broadhurst and A. Lamble, Cunard Building, Liverpool; S. J. Peachey, 5 Yew Tree Road, Davenport, Stockport; and United Alkali Co., Cunard Building, Liverpool. British patent No. 127,481.)

OTHER CHEMICAL PATENTS.

THE FRENCH REPUBLIC.

485,631. Vulcanizable substitute for rubber. J. Flint.
485,148. Rubber compound. E. von Vargyas.
485,278. Treating rubber and rubber substitutes. General Rubber Co.
485,797. Treating latex preparatory to vulcanization. General Rubber Co.
485,827. Coagulating rubber or the like. General Rubber Co.

RUBBER DIVISION OF AMERICAN CHEMICAL SOCIETY.

THE first meeting of the newly organized Rubber Division of the American Chemical Society will be held in Philadelphia, Pennsylvania, September 4 and 5.

A large attendance is expected and in view of the very interesting program that has been provided, the meeting promises to be a most successful one. The following reports and papers will be read:

1. Report of the Executive Committee.
2. Report of the Secretary.
3. Report of the Fruit Jar-Ring Committee. L. J. Plumb, chairman.
4. Report of the Committee on Physical Testing. H. E. Simmons, chairman.
5. "A Method of Determining Permanent Set in Rubber Goods." E. L. Davies.
6. "A New Method for the Determination of Sulphur in Rubber Mixtures." G. D. Kratz, A. H. Flower and Cole Coolidge.
7. "The Extraction of Rubber Goods." S. W. Epstein and B. L. Gonyo.
8. "The Theory of Balloon Fabric Protection." John B. Tuttle.
9. "The Expansion of Rubber Compounds." C. W. Sanderson.
10. "Volume Increase of Compounded Rubber Under Strain." H. F. Schippel.
11. "The Determination of Cellulose in Rubber Goods." S. W. Epstein and B. L. Gonyo.
12. "The Variability of Crude Rubber." John B. Tuttle.
13. Symposium on the "Action of Accelerators during Vulcanization." Led by J. H. Scott.
14. "The Action of Certain Organic Accelerators in the Vulcanization of Rubber." G. D. Kratz, A. H. Flower and Cole Coolidge.
15. "Reactions of Accelerators during Vulcanization." C. W. Bedford and Winfield Scott.
16. "The Effect of Organic Accelerators on the Vulcanization Coefficient." D. F. Cranor.
17. "The Effect of Compounding Ingredients on the Physical Properties of Rubber." C. Olin North.
18. "Some Methods of Testing the Hardness of Vulcanized Rubber." H. P. Gurney.
19. Symposium on the "Testing of Pigments." Led by George Oenslager. Contribution from M. M. Harrison and M. M. Kahn.
20. "The Manufacture and Use of Crimson Antimony." J. M. Bierer.
21. "Laboratory Aprons." C. P. Fox.
22. "The Value of a Library to the Rubber Laboratory." H. E. Simmons.

FIFTH NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES.

The Fifth National Exposition of Chemical Industries will be held at Chicago, Illinois, Coliseum and First Regiment Armory, the week of September 22, 1919.

This will be the largest gathering of chemists in the United States since the war. The leading engineering and metallurgical societies of the country plan to hold meetings at which many interesting and important papers will be presented. There will be many new exhibitors in addition to all the former ones, covering the entire field of chemical industries.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS" AND "RUBBER MACHINERY," by Henry C. Pearson, should be in the library of every progressive rubber man.

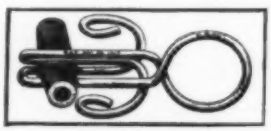
LABORATORY APPARATUS.

QUIET EVAPORATION.

THE TENDENCY OF SOLUTIONS in beakers or flasks to bump on a hot plate may be obviated by substituting an oil bath for the plate. The containers should be immersed so that the oil of the bath will be at a higher level than that of the solution to be heated. The solution will thus be heated evenly and boil quietly as in the case of steam-jacketed kettles.—("The Chemist-Analyst.")

PINCH CLAMP.

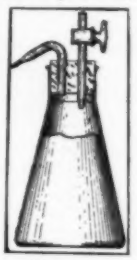
The Day pinch clamp, shown in the illustration, can be placed on rubber tubing from the side without disconnecting the apparatus. It has a firm, strong grip, sufficient for all tubing up to ⅜-inch in diameter. The thumb grips are large and well located for effectiveness. This is said to be the only pinch clamp on the market that can be fastened on tubing without disconnecting the apparatus of which it is a part. (Central Scientific Co., 460 East Ohio street, Chicago, Illinois.)



DAY PINCH CLAMP.

WEIGHING BURETTE.

A simple weighing burette has been devised to avoid certain of the disadvantages of ordinary burettes, such as inaccuracy of bore, temperature variation, drainage, and difficulty of accurate reading. This instrument obviates all corrections and allows nearly as rapid work as the ordinary style, with accuracy limited only by the sensitiveness of the end-point.



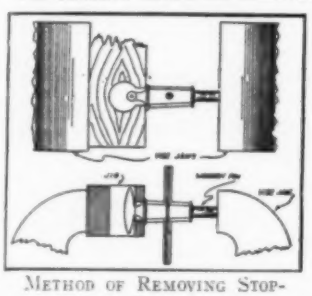
WEIGHING BURETTE.

To use the burette, turn up with the cock closed, so that the capillary is over the titrating vessel, and allow the heat of the hand to force the standard solution into the capillary. Then when the cock is opened the liquid will flow freely, and there will be no danger of loss through the cock. When near the end-point, the cock may be closed and the solution forced in drops by the heat of the hand.

A predetermined quantity of solution cannot be delivered without repeated weighings, but a little practice will enable the user to estimate the desired quantity within a few per cent. A 100-cc. flask with rubber stopper, cock, and capillary, weighs about 40 grams.—("The Journal of Industrial and Engineering Chemistry," July, 1919.)

REMOVING PLUGS FROM STOP-COCKS.

An effective device for removing plugs from glass stop-cocks is here illustrated and described.



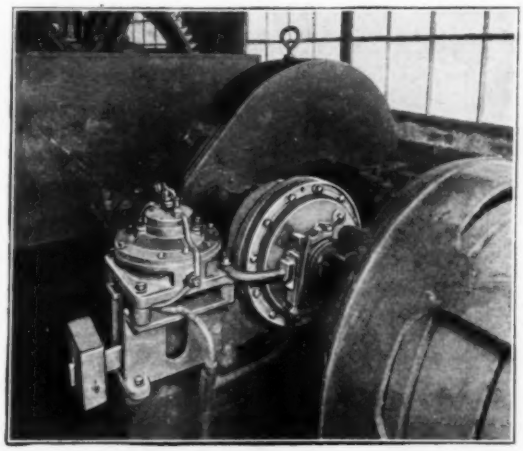
METHOD OF REMOVING STOP-COCK PLUGS.

The common method of removing the stuck plug is to hammer gently on a small piece of wood placed on the plug, often resulting in the barrel being cracked, the plug chipped and breakage of important parts of complex apparatus. If, however, the steady pressure of an ordinary vise is exerted on the plug with the glass in contact with nothing but wood, the plug can easily be removed without damaging either barrel or plug.—("The Journal of Industrial and Engineering Chemistry," May, 1919.)

New Machines and Appliances.

C-H SOLENOID BRAKE, FOR RUBBER MILL DRIVE.

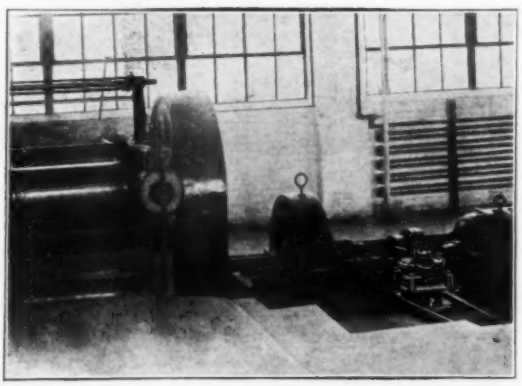
THE INSTALLATION of brakes and clutches on driving shafts for the instantaneous stopping of rubber mill machinery is now almost universal in the large rubber plants, and many of the smaller plants are employing this means of reducing the hazard assumed by workmen engaged at the mixing



C-H MAGNETIC CLUTCH BRAKE ON WASHER LINE.

rolls, washers, crackers and calenders. Electrically operated brakes and clutches have the advantage of remote control. This is a very important feature as it permits the releasing of these devices by switches located conveniently to the workmen.

A brake which is applied by gravity and released by an electro-magnet is especially desirable because it is positive in its operation. A band brake of this type consists of a cylindrical cast-iron shell enclosing a bobbin-wound coil, which when energized actuates a plunger. The brake band of woven asbestos lining is drawn taut by means of a weighted lever, which is



MAGNETIC BRAKE AND CLUTCH ARE OPERATED BY MOVEMENT OF CRADLE SWITCH OVER WASHERS.

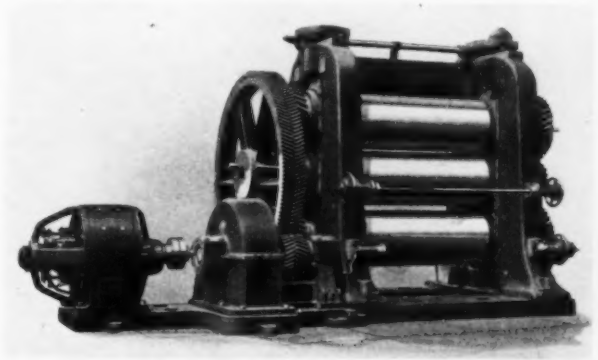
attached to the solenoid plunger. When the lever is in its normal position, the brake is applied. Upon starting the motor the current energizes the solenoid, thus lifting the lever and releasing the brake. As no latches of any kind are used, there is no possibility of the brake failing to function. Any derangement in the solenoid brake system causes the brake to be applied, thus resulting in a safe condition.

In a recent test a 200-h.-p., 590-r.p.m. motor driving three mills without load at full speed, was disengaged by a cut-off device, the brake and clutch being operated at the same time. A chronograph employed to measure the movement of the drive-roll periphery indicated only 4 inches subsequent to the operation of the cut-off device. The same test was repeated with the brake inoperative and the chronograph indicated a movement of 86 inches. When neither the brake nor clutch was used, the rolls traveled 376 inches, or about four revolutions. Under normal working conditions, with the mills loaded, the movement of the rolls will necessarily be still less than the minimum of 4 inches obtained in this test.

It is thus shown that although a clutch alone affords a large measure of protection, complete protection is impossible without the use of a brake. (The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin.)

A NEW THREE-ROLL CALENDER.

The advantages claimed by the makers of this recently designed machine are that the calender, reducing gear, and motor are all mounted on a straight line bed-plate, the design is compact, and the reducing gear is mounted on roller bearings and provided with splash oiling system while the jack-shaft bearing is combined with the gear-reducing housing.



THE W-S-M CALENDER.

The calender frame is of the hollow cast-iron type and heavily ribbed. It is firmly tied across the top with two cast-iron separators and at the bottom with the cast-iron base plate. The rolls are cast iron with chilled face, finished all over and ground to size. They are cast hollow, bored out to insure uniform thickness, and ground concave and convex to suit their respective work. They are fitted with packing boxes for water connections and any or all of them can be removed without removing either frame from the base plate. Each roll is carried on cast-iron bearing shells lined with hard bearing bronze. The bearing bushings have large oil grooves and are lubricated from sight feed glass oil-cups mounted on the frame.

The calender is equipped with cut herringbone-gears throughout except the wind-up gears which are cut spur-gears.

The upper and lower rolls can be adjusted to any desired opening by a hand-wheel located on the side of the frame. It consists of a series of bevel and worm gears and screws that act directly on the bearing shells. Either end of either roll can be lowered or raised by engaging or disengaging the clutches

which form a part of the adjusting mechanism. A motor for raising or lowering the rolls can be placed on the calender frame.

A friction-driven wind-up and friction-controlled let-off are mounted on the frame. This wind-up is driven through a train of cut spur-gears from the end of the rolls to the adjustable friction-clutch on the spindle. All of the gears are protected by cast-iron guards. The wind-up can be run in either direction by changing one of the spur-gears from one stud to another.

The calender is equipped with an adjustable knife holder with sufficient number of collars to perform all ordinary operations.

In the reducing gear cut herringbone-gears are used. The pinion is of forged high-carbon steel and is made in one piece with the shaft. The gear is a steel casting. The shafts are mounted on heavy-duty steel mill-type roller bearings and the gears are encased in a cast-iron oil-tight housing. The lower half of the housing carries the bearing.—(The Wellman-Seaver-Morgan Co., Cleveland, Ohio.)

THE BRADLEY STENCIL MACHINE.

The stencil machine here pictured is a device for the shipping department to save time and labor in the addressing of freight and express shipments.

On this machine, a consignee's name and address can be cut into a paper stencil in about 30 seconds. With this stencil, the average shipment can be marked in one-fifth the time consumed

MACHINE FOR CUTTING STENCILS.

by the average marker with a hand-brush. By laying the stencil on the box or carton, and then rubbing the brush over it, the name and address are left imprinted neatly and legibly on the surface of the package.

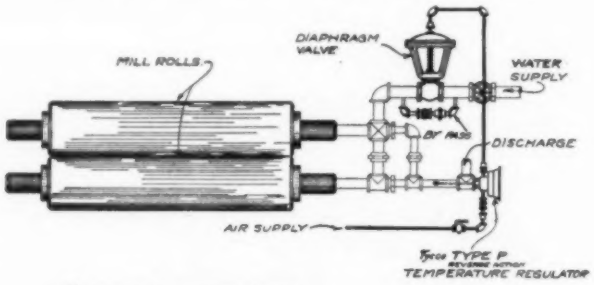
On account of its neatness, stenciling is considered an improvement over tagging or labeling. Because it is always legible and secure, the express and railroad companies recommend stenciling to obviate lost and delayed shipments. (Bradley Stencil Machine Co., St. Louis, Missouri.)

MILL ROLL TEMPERATURE CONTROL.

It is a well-known fact that rubber stock while being mixed on the rolls constantly builds up frictional heat, and if not controlled it will start vulcanization and result in burning the stock, making it unfit for use.

The regulator shown in the accompanying illustration automatically controls the temperature in mill rolls, and operates in the following manner:

The thermostatic element of the regulator is placed in the discharge line from the mill-roll, the diaphragm valve being placed on the inlet water line of the mill-roll. The regulator is of the type known as a reverse action regulator—that is, it functions when the temperature reaches a certain height, so that through a direct-action diaphragm valve, an increasing flow of water will be admitted to the line going to the mill-roll, thus



TYPE P TEMPERATURE REGULATOR, CONTROLLING TEMPERATURE IN MILL-ROLLS BY MEANS OF COOLING WATER.
NOTE: BY PASS MUST BE CRACKED OPEN TO INSURE CIRCULATION AROUND REGULATOR STEM

MILL ROLL TEMPERATURE REGULATOR.

bringing the temperature down. (Taylor Instrument Co., Rochester, New York.

RUBBER-DUST COLLECTOR.

A new application of a well-known principle may be seen in the accompanying illustration that shows a blower being used for removing rubber dust from a tire-buffing machine.

The installation consists of a direct-connected volume blower set on a platform on the side wall. A duct runs from the inlet or exhaust side of the blower to two emery buffing wheels. These emery wheels are partly covered by a crescent-shaped hood, which catches the dust from the tire casing, draws it up into the blower, and discharges it into the cyclone dust collector. The rubber particles and grindings after entering the collector drop to the bottom through a pipe into a receptacle. (Ilg Electric Ventilating Co., Whiting and Wells streets, Chicago, Illinois.)

REMOVING DUST FROM TIRE BUFFER.

MACHINERY PATENTS.

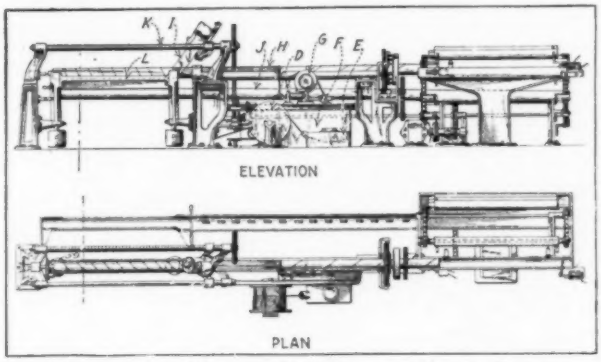
CORD-FABRIC-FORMING MACHINE.

THE FABRIC-FORMING MACHINE here illustrated produces rubberized cord fabric for tire building by a method which eliminates the losses of economy inherent in the usual methods of cord-tire construction.

The machine is of such character that a spool of cord is placed at one point in the machine and in its course through the machine is impregnated with rubber, wound on a mandrel and receives a skim coating of rubber, applied over the cords formed upon the mandrel; then, this covering of rubberized and coated cords is cut on the bias into plies of width required for building a tire carcass.

The central unit of the machine includes a mandrel-driving mechanism, and a cord-impregnating, feeding, and tensioning mechanism for supplying the cord to the mandrel. A second unit consists of the mandrel-collecting and feeding mechanism. The third unit comprises the gum-wrapping and stripping mechanism.

In operation, the cord from the spool *D* passes through the cement pot *E*, through the vacuum-drying chamber *F*, around the tension *G* to a securing hook on the end of a mandrel *H* which is spirally grooved at a light pitch. The mandrel is rotated and the winding of the rubberized cord upon the mandrel commences. At this time the mandrel-loading mechanism is put in operation so that when the first mandrel is completely



MACHINE FOR MAKING TIRE-BUILDING FABRIC STRIPS.

wound, another one will be in the proper position to be next covered with the cord.

When the mandrel is nearly wound the free end of a gum strip *I* is attached to the end of the mandrel and the driving mechanism *J* thrown into operation. This causes the screw-threaded rail *K* to revolve slowly, and the gum-strip-applying mechanism to travel in opposite direction to that of the mandrel. The difference in speed compensates for the width of the gum strip, allowing sufficient lapping to cover the mandrel completely. At the completion of this operation the rotation of the mandrel is stopped and the operator then severs the cord at the junction of the two mandrels, fastening the ends around the securing hooks on the mandrels. The transferring cradle is then rocked, delivering the freshly covered mandrel into the stripping trough *L*. The machine is again started and the operation just described is repeated.

In the stripping trough the mandrel is stripped of its covering by means of a knife inserted into an appropriate groove. The operator slowly revolves the mandrel with one hand at the same time thrusts the knife forward in the groove with his other hand and severs the cords and fabric. He then deposits the severed frabric strip in any suitable stock take-up or rolling table. (Frank A. Seiberling, Akron, Ohio, assignor to The Goodyear Tire & Rubber Co., a corporation of Ohio. United States patent No. 1,309,424.)

OTHER MACHINERY PATENTS.

THE UNITED STATES.

NO. 1,308,834. Repair vulcanizer. J. W. Arthur, assignor to The Williams Foundry & Machine Co.—both of Akron, O.
1,309,845. Electric repair vulcanizer. O. C. Dennis, Chicago, Ill.
1,309,894. Tire-treading apparatus. K. B. Kilborn, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.
1,310,236. Tire-making machine. J. R. Gammeter, Akron, O.
1,310,439. Apparatus and method for making hollow rubber articles. F. T. Roberts, Cleveland Heights, assignor to The Paramount Rubber Co., Cleveland—both in Ohio.
1,310,440. Apparatus and method for making hollow rubber articles. F. T. Roberts, Cleveland Heights, assignor to The Paramount Rubber Co., Cleveland—both in Ohio.
1,310,441. Apparatus and method for making rubber nipples. F. T. Roberts, Cleveland Heights, assignor to The Paramount Rubber Co., Cleveland—both in Ohio.
1,310,442. Apparatus and method for making hollow rubber articles. F. T. Roberts, Cleveland Heights, assignor to The Paramount Rubber Co., Cleveland—both in Ohio.
1,310,701. Machine for building pneumatic-tire casings. E. Hopkinson, New York City.
1,311,012. Apparatus for vulcanizing rubber boots and shoes. F. R. Ross, Cape Girardeau, Mo.
1,311,121. Apparatus for making fibrous webs for electric insulation. E. Haefely, Basel, Switzerland.
1,311,375. Press for vulcanizing tires to different degrees of hardness. J. H. Birkenbeuel, Portland, Ore.
1,311,560. Repair vulcanizer. E. T. Horsey, Cleveland, O.
1,311,613. Tire-vulcanizing apparatus. M. Le R. Munger, Pittsburgh, Pa., assignor to E. B. Sawyer, Lincoln, Neb.
1,311,856. Apparatus for making rubber shoe-soles. P. and B. De Mattia, Clifton, N. J.

THE DOMINION OF CANADA.

191,586. Apparatus for vulcanizing rubber water bottles. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of J. L. Mahoney, New Haven, Conn., U. S. A.
191,722. Apparatus for making hollow rubber articles. The Aranar Co., assignee of F. T. Roberts—both of Cleveland, O., U. S. A.

THE UNITED KINGDOM.

126,111. Apparatus for making tires. Dunlop Rubber Co., 14 Regent street, Westminster, and C. Macbeth and C. K. Jones, Para Mills, Aston Cross, Birmingham.
126,131. Apparatus for making inner tubes. Dunlop Rubber Co., 14 Regent street, Westminster, and C. Macbeth, Para Mills, Aston Cross, Birmingham.
126,181. Tire molds for shaping and vulcanizing. D. Moseley & Sons and T. W. Duncan, Chapel Field Works, Ardwick, Manchester.
127,406. Apparatus for making joint-making packing from rubber and asbestos fiber. Potter's Asbestos Co., Rochdale, and D. Bridge & Co. and R. Bridge, Castleton Iron Works, Castleton, both in Lancashire.
127,533. Means to prevent grit from entering bearings of rubber-washing machines. O. Shaw, Corbett Street Iron Works, Corbett street, Bradford, Manchester.

THE FRENCH REPUBLIC.

489,652. Improvements in apparatus for impregnating or treating fabrics and other materials. J. D. Taylor.
489,779. Improvements in apparatus and methods for the fabrication of an elastic substance. Revere Rubber Co.
489,812. Improvements in calenders for the treatment of rubber. Morgan & Wright.
489,813. Improvements in machines for shaping cylindrical bodies by rolling up. Revere Rubber Co.
491,063. Apparatus and process for mixing rubber or similar materials. C. H. Gray.
491,189. Machine for attaching two-piece heels having rubber tread portion. United Shoe Machinery Co. of France.
491,191. Machine for inserting buckles in galoshes. United Shoe Machinery Co. of France.
491,283. Improvements in apparatus for placing valves on pneumatic tires or other pneumatic articles. Dunlop Rubber Co. of Australasia, Limited.

PROCESS PATENTS.

THE UNITED STATES.

NO. 1,309,118. Stripping down carcasses of used tires to make leggings. J. J. Dettling and E. A. Tinsman, Akron, O.
1,309,687. Manufacture of inner tubes for pneumatic tires. I. B. Jeffries, Llanelly, Wales.
1,310,013. Reclamation of vulcanized rubber by swelling under pressure and suddenly releasing pressure. H. R. Haertel, Franklin, Mass.
1,310,436. Manufacture of tubes for pneumatic tires. F. T. Roberts, assignor to The Paramount Rubber Co.—both of Cleveland, O.
1,310,437. Manufacture of inflatable rubber articles. F. T. Roberts, assignor to The Paramount Rubber Co.—both of Cleveland, O.
1,311,392. Joining rubber tubes. R. J. Harrison, Chicopee Falls, Mass.
1,311,738. Manufacture of puncture-proof tire-tubes. G. F. Armstrong, Rutherford, N. J.

THE DOMINION OF CANADA.

191,583. Manufacturing felt articles with an apron, etc. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of F. Sage, Hastings, Mich., U. S. A.
191,584. Closing opening in hollow rubber article, vulcanizing, etc. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of J. L. Mahoney, New Haven, Conn., U. S. A.
191,585. Joining vulcanized rubber parts under tension, applying pressure, and vulcanizing. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of J. L. Mahoney, New Haven, Conn., U. S. A.
191,723. Vulcanizing pneumatic-tire casings, etc. F. T. Roberts, Cleveland, O., U. S. A.

THE UNITED KINGDOM.

125,871. Wrapping electrodes of secondary batteries with tape of rubber or other insulating material. Fuller Accumulator Co., Woodland Works, Chadwell Heath, and T. Jones, 33 Kinfauns Road, Goodmayes, both in Essex.
126,236. Ornamenting rubber articles by dipping in solution of colored rubber, dropping other colors on them irregularly, drying, and vulcanizing. C. E. Leheup, 35 Vernon Road, Leytonstone, London.
126,641. Manufacture of packing and insulating material from layers of thin asbestos felt coated with rubber. I. H. Levin, 101 West 140th street, New York City, U. S. A. (Not yet accepted.)
127,544. Manufacture of rubber balls. K. Fukuda, 3394, Oimachi-Ihara-gun, Tokio, Japan.

THE FRENCH REPUBLIC.

491,587. Method and means employed in making rubber tires. J. A. Swinchart.

THE EDITOR'S BOOK TABLE.

"TECHNICAL CHEMICAL ANALYSIS." BY R. H. H. AUNGST, INstructor in Technical Chemistry, Pratt Institute, Brooklyn, New York. The Wiley Technical Series, J. M. Jameson, Editor. John Wiley & Sons, Inc. New York. (Paper, loose-leaf, 8 by 10½ inches, 44 sheets.)

THIS publication constitutes a loose-leaf laboratory manual for students, and comprises methods for the technical chemical analysis of a variety of organic and inorganic products as coal, iron and steel, water, sugar, animal and vegetable oils, pigments, paints and rubber. In view of the practical importance of the subject the section devoted to the analysis of rubber might well be extended to include many more available analytic methods.

"BULLETIN DES CAOUTCHOUCS." INSTITUT COLONIAL DE Marseille, France. H. Dunod & E. Pinat, 49 Quai des Grands-Augustins, Paris.

THE "Bulletin des Caoutchoucs," of which two numbers have appeared to date, is one of several publications of the Institut Colonial de Marseille, France. The work of the Institute is comprised in special sections devoted respectively to cereals and starch-producing plants, grasses and caoutchouc. The chief of the caoutchouc section is G. Van Pelt, who discusses at length in Bulletin No. 1 the program of the section, and proposes in conclusion:

1. The establishment of laboratories on important plantations under the direction of specialists qualified to undertake the study of questions of interest concerning production, or at least have present on the ground a director experienced in the scientific culture and preparation of caoutchouc.

2. Continuous collaboration of the plantation technical service with special laboratories, official or otherwise, in the producing countries.

3. The establishment of a scientific evaluation service in place of the present empirical trade methods.

4. A scientific organization specializing in matters applying to the rubber industry.

5. Close collaboration of this scientific organization with the technical service for manufacture.

In demonstrating the advantages to be derived from the application of the above proposals the importance is repeatedly insisted upon of connecting all the various organizations working within its prescribed limits. This connection will permit all specialists to furnish a maximum of useful effort, and they will be kept continuously informed of the condition of the studies undertaken and the importance of the new problems to be investigated.

NEW TRADE PUBLICATIONS.

THE ARMSTRONG RUBBER COMPANY, INC., GARFIELD, NEW Jersey, is sending out an interesting and instructive pamphlet, showing all the stages of the manufacture of its tires and inner tubes from receipt of the crude rubber to the shipment of the finished product. Each stage is illustrated with half-tone engravings, making a graphic exposition of the hand method of building tires. The book is handsomely printed in two colors, with an embossed cover, having a cut-out to show a halftone of the finished tire.

* * *

F. C. MATHIESON & SONS, LONDON, ENGLAND, HAVE ISSUED Number 20 of their handbook, "Rubber Facts and Figures," under date of May, 1919, which gives in compact form the usual voluminous amount of information regarding the many British-owned rubber planting companies. The book is of value to the investor, giving facts regarding capital stock, area of land and number of trees, annual amount of rubber harvested, dividends paid, etc., and is of interest to the rubber trade generally as showing the steady increase in production of plantation rubber, its fluctuations of prices, costs, forward sales, etc.

THE RUBBER GROWERS' ASSOCIATION HAS PUBLISHED THE FIRST number of its "Bulletin," which is to be sent free to every member of the Association. There will be no advertisements. Besides papers on rubber supply, markets, and so forth, and the proceedings of the Association, the "Bulletin" prints a variety of scientific papers and articles relating to rubber in all its branches.

* * *

"TIRE TRADE JOURNAL." THIS IS A NEW AND INTERESTING publication from the press of The Gardner-Moffat Co., Inc., of New York. It carries some 20 pages of reading, 30 of advertising, and a very complete price list of standard makes of tires and tubes. In his excellent foreword the Editor outlines the broad field that the publication plans to cover. In brief, while the manufacturer of tires will be kept informed regarding new processes and machines, the tire dealer and repair man will also be posted in all that pertains to sales, distribution, and brought into close contact with the manufacturers.

The first issue is excellently gotten up and of much interest. Editor Pinto and his staff are to be congratulated.

* * *

THE MOTOR AND ACCESSORY MANUFACTURERS' ASSOCIATION issues its year book for 1919, at the end of the fifteenth year of the existence of the association. Besides the statement of the work done during the past year, the plans for the future and the formal records of the association, this issue contains interesting accounts of the war activities of the various sections of the association, with many portraits and sketches of officials.

* * *

A NEW CATALOG OF HYDRAULIC MACHINERY MANUFACTURED BY the Camden Iron Works, Camden, New Jersey, includes machines used in the manufacture of pneumatic and solid rubber tires, the heavy type of tire-applying presses used in garages, hydraulic presses for shoe sole and heel manufacture, heavy presses for making rubber hose, accumulators of all types, and steam or power pumps for all services.

* * *

FOREIGN TRADE SERIES NO. 1, ENTITLED "DISCUSSION OF AND Practice and Procedure under the Export Trade Act," has been published by the Federal Trade Commission, Washington, D. C., for the benefit of those desiring to co-operate in the development of American foreign trade through associations formed under the Webb-Pomerene law. The pamphlet contains many facts of importance to all firms doing an export business, including the text of the Webb law, sections of the amended Wilson Tariff Act, and of the Federal Trade Commission Act.

CUSTOMS APPRAISER'S DECISIONS.

No. 43178.—Protests 931667, etc., of The Rubber Association of America et al. (New York).

GUTTA PERCHA, GUTTA HANGKANG, GUTTA KATIAN, GUTTA TEWEH are certain gums, classified at 10 per cent ad valorem under paragraph 385, tariff act of 1913, are claimed free of duty as gutta percha under paragraph 502. Merchandise invoiced as gutta hangkang, gutta katian, gutta percha, and gutta teweh was held entitled to free entry under paragraph 502. G. A. 8194 (T. D. 37759), G. A. 8081 (T. D. 37284), and Abstracts 42908 and 42885 followed. (Treasury Decisions, Volume 36, No. 23, June 5, 1919.)

* * *

No. 43213.—Protest 930720 of Pitt & Scott (New York).

RUBBER RINGS.—Merchandise invoiced as "G. G. rings" classified as a manufacture of hard rubber at 25 per cent ad valorem under paragraph 369, tariff act of 1913, is claimed dutiable as a manufacture of india rubber or gutta percha at 10 per cent under paragraph 368. On the authority of Abstract 43008 the rubber rings in question were held dutiable under paragraph 368. (Treasury Decisions, Volume 36, No. 25, June 19, 1919.)

New Goods and Specialties.

WATERPROOFS IN ENGLAND.

MORE BRILLIANT COLORS and fancy designs are appearing in waterproof goods in London, apparently as a reaction from the gloom of the war. Ladies' waterproofs are being made, for instance, in black and white check with inset collar and belt; or in white with a deep sailor collar inset in black, with a deep flounce and cuffs also black; or in biscuit shades of fawn inset with navy-blue. Cashmeres, in subdued shades of Saxe blue, mauve, champagne, and mole are also seen. Other designs follow the "dazzle" idea.

For children, new designs are carried out in color schemes in which Saxe blue, Royal blue, purple, scarlet, rose-pink, and various shades of green are employed.

("The India-Rubber Journal.")

DESIGNS FOR ENGLISH CHILDREN'S WATERPROOFS.

Many of the girls' coats have collars, belts and cuffs; cable-stitched or piped. Some are in raglan shape, single or double-breasted, with trasting trimmings, making the children's garments as smart as those of adults.

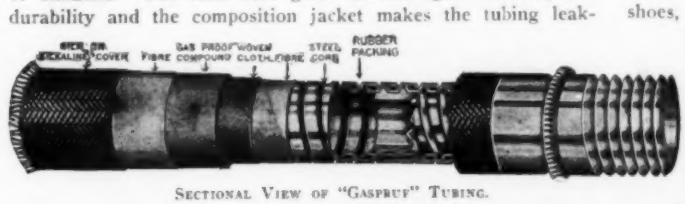
THE "PERFECTION" CAPE.

A new type of waterproof cape is made of Tyco silk, rubberized with Para rubber on one side, with smoked silk finish on the other. It is made in one piece and opens along the sides of the sleeves and body, where it fastens with snap buttons. It packs 8 by 4 by 1½ inches. (Athol Manufacturing Co., Athol, Massachusetts.)

"PERFECTION" CAPE.

"GASPRUF" TUBING.

A safe flexible tubing for conveying gas, and one in which gas may be left standing without fear of leakage is shown in the sectional view below. It consists of two tubings in one. An inner core of rubber-packed flexible galvanized steel is covered with a double jacket and with two coverings of gas-proof and gas-tight compound, having an outer covering of lustrous silk or silkaline. The steel core gives the strength necessary for durability and the composition jacket makes the tubing leak-proof and odor-proof. The rubber ends are corrugated on the inside, so as to hold firmly, and are indestructible and safe. (Atlantic Tubing Co., Providence, Rhode Island.)



SECTIONAL VIEW OF "GASPRUF" TUBING.

A RUBBERIZED VEST.

A vest to protect the wearer from wind, rain, and cold is shown below. It is made high in the neck to keep wind and cold from the throat, and is the same thickness in the back as in the front, being made in one piece, without seams to rip, in back or sides. This vest is made of different kinds of fabric, rubberized, and, in some qualities, wool-lined. It has four pockets on the front, two large ones and two smaller. It is suitable for the chauffeur, automobile tourist, motorcyclist, hunter, fisherman, and all who are exposed to the weather. In some respects it is more comfortable to wear than a sweater. (Comfort Auto Robe Co., Inc., Waterloo, New York.)

WEATHER-PROOF VEST.

THE "APSOLE" OUTING SHOE.

A marked improvement in the manufacture of cloth-upper, rubber-soled footwear, of the so-called "tennis" variety is the elimination of the rubber foxing strip connecting the soles with the uppers, and use of a welt process, somewhat similar to the process used in factories making leather footwear. The soles are of the "fiber" variety, made of a compound of rubber and fiber, and having greater durability than all-rubber soles, and the inner soles are of cork, insuring coolness and comfort. The result is a much more durable boot or shoe, and a far handsomer one, and as it is made on the latest fashionable last, this line is having such a demand from the trade as to greatly exceed the factory production. (Apsley Rubber Co., Hudson, Massachusetts.)

"MURIEL APSOLE" SHOE.

"2 IN 1" TREAD FILLER.

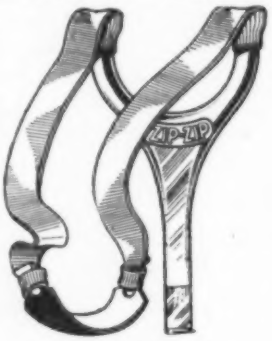
A liquid rubber for treating cuts, bruises, and gashes in automobile and motorcycle casings comes in a convenient tube one by six inches. (Van Cleef Brothers, Chicago, Illinois.)

IN ATTACHING RUBBER HEELS TO BOOTS AND shoes, clincher nails are used, which are driven through metal washers. "Klean Kutt Kup"-head rubber-heel nails, just placed on the market, have cup-shaped heads which hold and center the nail-set so that the nail can be driven straight. A center tack-point always clinches with a curl while the heads are flush with metal washers embedded in the heels. The shank corrugations are deeper than those on wire nails. (United Shoe Machinery Co., Boston, Massachusetts.)

"OLDFIELD" TIRE.

A NEW "SLING-SHOT."

Now that autumn is near, the boys are interested in hunting and shooting, and the boy who cannot have a gun is always glad to have a sling-shot. The one illustrated is suitable for shooting at small game or at a target and is known as the "Zip-Zap." The handle is made of nicely finished metal and is strong and durable. The "sling" portions are made of a very good grade of elastic and have great strength and resiliency as well as durability. Every dealer knows how the possession of a toy like this creates the desire for one like it in other boys who see it, and when the first boy tells where he got his "Zip-Zap," his companions are likely to patronize that same store—and soon. (Automatic Rubber Co., Columbia, South Carolina.)



"ZIP-ZAP" SLING-SHOT.

AN INDUSTRIAL GAS-MASK

Built under the direction of a former executive of the Research Division of the Chemical Warfare Service of the Government, the gas-mask shown here gives the Army standard of gas protection—something never attained before in industrial gas-mask design. The points of particular practicability are: protection against a wide range of industrial gases, fumes, smokes, and dusts; comfort in wearing; clear vision through the eye-pieces, made possible by the incoming air drying any moisture on them; quick adjustment; low breathing resistance; no nose-clip or mouth-piece, permitting speech unhindered; no handicap in wearing while at work; light weight; first class quality of materials used in its construction. The complete mask includes the face-piece, the interior of which is illustrated here, made of high-grade, heavy rubber covered on the outside with a protective layer of tough elastic fabric; a canister with connections and fittings; and a durable, light chest harness. The canister contains the materials for absorbing the gas, dust, fumes or smoke, and is replaceable when exhausted through use. The rubber face-piece rests easily against the face and gives both comfort and safety from leakage. (The Mine Safety Appliances Co., Gas Mask Department, Chamber of Commerce Building, Pittsburgh, Pennsylvania.)

"BURRELL" GAS-MASK.

ANOTHER PUNCTURELESS TIRE.

A tire that claims to eliminate the dangers of puncturing, as well as tire repair bills and the cost of extra tubes and casings comes from the West. It is composed of three layers of corded fabric with cushions of live rubber between and an outer tread of extra tough rubber. The stretchless cord belts distribute the shock vibration, while low-pressure air chambers in the rubber cushions, at regular intervals, give resiliency. (Lambert Tire & Rubber Co., Portland, Oregon.)

LAMBERT "TRUBLPRUF" TIRE.

DUNLOP SELLS BALLS THROUGH PROFESSIONALS.

The Dunlop Rubber Co., Limited, Birmingham, England, is employing the novel sales policy this season of selling its golf balls through professional players exclusively, instead of through sporting goods dealers as well. Having introduced the "Dunlop" golf balls in this way, it was a logical procedure to confine their sale to the club professionals.

MEDICINE DROPPER.

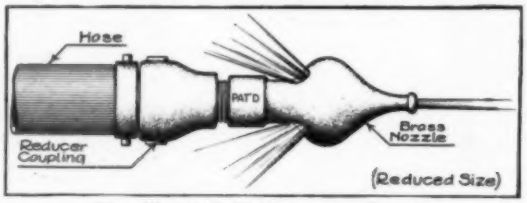
A new style of medicine dropper is an improved form of the well-known combination of rubber bulb and glass tube. However, instead of the usual straight tube, this one has a bulb at the center. The point is glazed, and the rubber bulb is of the best quality. These droppers come packed twelve on a card for display purposes, and each card is, in turn, packed in a separate carton. This dropper is known as the "Maderite." (The Seamless Rubber Co., Inc., New Haven, Connecticut.)

"MADERITE" DROPPERS.

A SELF-PROPELLING NOZZLE.

The "Victory" self-propelling nozzle has recently been invented by John T. Burns, a workman employed by the Department of Sewers, New York City. The point of the nozzle permits a small stream of water, forced through at high pressure, to cut into any obstruction in the sewer and loosen portions of it. This device is extremely simple to operate and accomplishes results.

In the back part of the nozzle are holes through which some of the water is diverted and this tends to float or force the loosened part of the obstruction back to the sewer opening. The force of the water impels the nozzle forward at the same time that it forces the obstruction behind it, and pulling the hose with it. Sometimes the distance covered and cleared is as great as two hundred feet. (Sidney Sladden & Co., 1576 Woolworth Building, New York City.)



THE "VICTORY" SELF-PROPELLING NOZZLE.

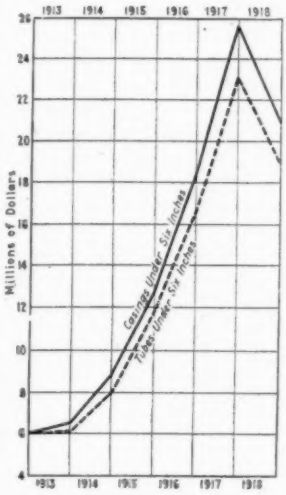
CATERPILLAR TIRE.

A new style of tire intended for use on heavy trucks is called the "Caterpillar," because it reaches out and grips the road, lets go without friction, and on release puts behind the point of road contact its full resilient force that in a measure overcomes the inertia of the wheel. The tire is applied by a hydraulic press. As shown in the accompanying illustration, the tire is cut into at regular intervals, the spaces alternating on the opposite edges of the outer surface. It is claimed that this tire is much easier on engine and chassis. (Kelly-Springfield Tire Co., 200 West 57th street, New York City.)

KELLY-SPRINGFIELD "CATERPILLAR" TIRE.

Six Years of Tire Production in the United States.

STATISTICS RECENTLY PUBLISHED by the National Automobile Chamber of Commerce, Inc., together with a few conservative estimates by THE INDIA RUBBER WORLD, show the remarkable growth of the rubber tire industry during the major part of the war period and the check placed upon its nominal development after the United States joined the conflict.



PNEUMATIC TIRE AND TUBE PRODUCTION.

That the phenomenal growth of the United States tire output is due chiefly to the enormous and steadily increasing use of the automobile for both business and pleasure is indicated by the motor vehicle registration for recent years and the fact that about 2 per cent. of the product is being exported. The United States consumes practically its entire tire product.

AMERICAN MOTOR VEHICLE REGISTRATION.

Year	1913.	1914.	1915.	1916.	1917.	1918.
Cars	1,254,971	1,711,339	2,445,664	3,512,996	4,983,340	6,146,617

Assuming five tires per car as the average annual consumption the American demand for tires has grown from about 6,275,000 in 1913 to nearly 31,000,000 in 1918, or to nearly five times that of 1913.

AMERICAN TIRE AND TUBE PRODUCTION.

During the past six years the American tire and tube production, actual and estimated, has been as follows:

Year.	1913.	1914.	1915.	1916.	1917.	1918. 9 Months.
Casings under 6 inches ...	[1]6,588,000	[1]8,983,000	[1]12,840,000	18,564,957	25,840,656	16,196,196
Tubes under 6 inches..	.....	.....	.....	16,785,398	23,256,752	16,037,155

[1] Estimated.

It will be seen that the figures for 1917, the last whole year for which complete totals are given and the last year of unrestricted production, show an increase of nearly three times over the output for 1913. At an average of $25 per tire the value of the 1917 product was about $646,016,400.

AMERICAN CRUDE RUBBER CONSUMPTION FOR TIRES.

For the manufacture of the tires and tubes mentioned above the consumption of crude rubber was as follows:

	1917.	Nine Months, 1918.
Casings under 6 inches.....*pounds, dry weight*	162,643,482	106,256,616
Tubes under 6 inches	35,704,446	24,577,986
Solid tires	25,055,673	38,634,236
Other tires and sundries.....	9,983,195	11,105,397
Totals.....	233,386,796	180,574,235

[1] Only the estimated total weights are available for the years 1913-1916. They are: 1913, 65,880,000 pounds; 1914, 89,830,000 pounds; 1915, 128,400,000 pounds; and 1916, 185,649,570 pounds.

In 1917 approximately 75 per cent of the rubber consumed in the United States was used for tires and tire sundries as against only 58 per cent of the crude rubber imports for the fiscal year 1913. The actual quantity of crude rubber used in 1917, the year in which tire production reached its highest mark, was fully 3½ times that for the year 1913.

AMERICAN TIRE DEMAND FOR ORIGINAL EQUIPMENT.

Statistics of motor vehicle production in the United States indicate the increasing number of pneumatic and solid tires required annually for original equipment.

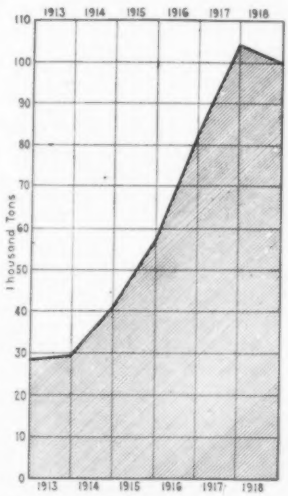
MOTOR VEHICLE PRODUCTION.

Year.	Passenger Cars.	Motor Trucks.	Totals.
1913	461,500	23,500	485,000
1914	543,679	25,375	569,045
1915	818,618	74,000	892,618
1916	1,493,617	90,000	1,583,617
1917	1,740,792	128,157	1,868,947
1918	926,388	227,250	1,153,637

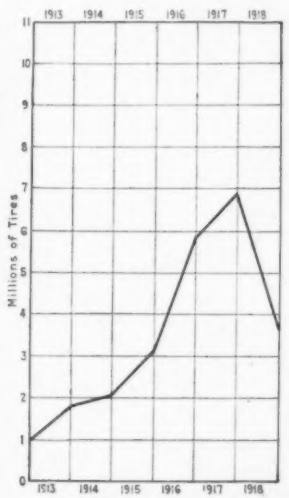
Only a cursory inspection of these figures is necessary to see how the production of passenger cars and correspondingly of pneumatic tires was curtailed by the war situation of 1918, and the production of trucks and solid tires stimulated. Truck tire production for original equipment showed continuous growth during the war period and in 1918 had increased over 8½ times more than the 1913 production. Pneumatic tire production for the original equipment of cars reached its highest figure for the year 1917, when it was nearly 3¾ times the 1913 output. It is seen, therefore, that while 1,940,000 tires sufficed for new equipment in 1913, no less than 7,475,776 were required in 1917, an increase of nearly three times. Although the greater volume of increase has been in pneumatic tires under 6 inches, the greater rate of increase has been in solid and large pneumatic tires for trucks.

TIRES IN USE IN THE UNITED STATES.

Of the 6,146,617 motor vehicles registered in the United States during the calender year 1918, some 662,000 were trucks, so that



CRUDE RUBBER CONSUMED IN TIRES AND TUBES.



PASSENGER-CAR TIRES FOR ORIGINAL EQUIPMENT.

about 8¼ times as many pneumatic tires under 6 inches as truck tires were in use last year, the number of each sort, exclusive of spares and replacements, being approximately 21,938,000 pneumatics and 2,,648,000 truck tires. One additional tire per car would be a conservative estimate for spares and replacements, making the totals 27,423,000 pneumatics and 3,310,000 truck tires. With nearly 31,000,000 motor vehicles tires in use it is not surprising that some 12,000 vulcanizers are kept busy with repairs and retreading.

On the basis of 20 pounds of rubber average per car for regular equipment, and one-fourth of that extra for one spare per car,

153,665,425 pounds of rubber were being used last year in American tire casings alone, an amount equal to nearly 40 per cent of the United States crude rubber imports for the fiscal year ended June 30, 1918.

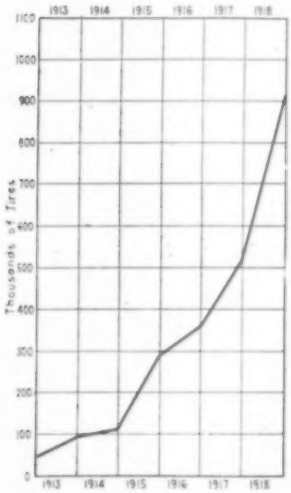
UNITED STATES TIRE EXPORTS.

Export business has become a considerable part of the American motor tire business as shown by the following statistics compiled by the Bureau of Foreign and Domestic Commerce:

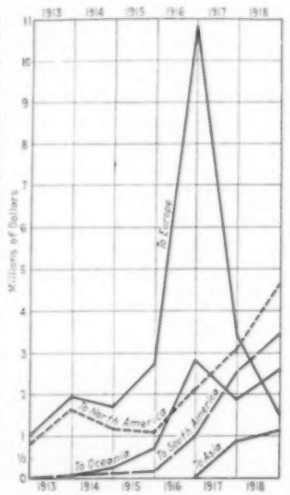
AUTOMOBILE TIRE EXPORTS.

Exported	Value.					
to—	1913.	1914.	1915.	1916.	1917.	1918.
Europe	$1,977,029	$1,764,240	$2,745,450	$10,992,184	$3,480,114	$1,460,518
N. America	1,626,155	1,254,200	1,187,632	2,184,874	3,186,265	4,474,713
S. America	100,065	115,387	214,068	1,050,398	2,596,936	3,432,181
Asia	36,212	64,173	73,430	477,895	816,300	1,194,551
Oceania	185,807	279,327	702,877	2,896,401	1,832,244	2,662,422
Africa	17,952	27,940	39,813	334,475	424,342	753,286
Totals	$3,943,220	$3,505,267	$4,963,270	$17,936,227	$12,330,201	$13,977,671

A study of these figures reveals several facts of interest, notably the continuous and remarkable growth of tire exports to South America, Asia and Africa. The average increase of business in these three divisions was nearly 34 times, and this combined value in 1918 was 35 per cent more than the value of these exports in 1913. Exports to Oceania fell off in 1917, but the following year had nearly reached the high mark of 1916 and represented an increase of some 13 times the value of the 1913 exports. North American exports were adversely affected in 1914 and 1915, but thereafter steadily increased until in 1918 they had increased 175 per cent in value.



TRUCK TIRES FOR ORIGINAL EQUIPMENT.



UNITED STATES AUTOMOBILE TIRE EXPORTS.

European exports have fluctuated greatly owing to the war. In 1914 they decreased a little, but increased considerably in 1915 and in 1916 jumped to more than five times their value in 1913, after which they declined steadily, the value of the 1918 shipments being only about 74 per cent of the 1913 value.

Total tire exports to all countries likewise fell off in 1914, but gained in 1915, jumped to about 4¾ times as much as in 1913 during 1916, dropped considerably in 1917, but showed a noticeable gain in 1918. It may be said, therefore, that except for the emergency year 1916, American automobile tire exports have shown a great and steady growth, the value of the 1918 foreign business having increased 254 per cent over that of 1913.

IT IS TO YOUR BEST INTEREST TO PUT LIBERTY BOND INTEREST IN War Savings Stamps.

THE "CONSCIENCE" OF MODERN INDUSTRY.

By G. T. Clayton.[1]

AS MODERN BUSINESS ORGANIZATION increases in complexity, further division of responsibility and more closely defined delegation of authority must be extended or the management will become chaotic. It is being recognized more and more that one most important function in a well-organized industrial establishment is the responsibility of selection, placing, and advancement of workers. This is what we mean by the term "employment management."

Employment management goes further, however, than merely concerning itself with such selection, placement and promotion. It investigates, as part of the selection, the character, experience, and capacity of the applicant. It investigates for placement; and does not limit its investigation to the applicant. It sounds possibilities of openings for placement, and it employs every means to secure the comfort and safety of the worker and thus assists his advancement by giving him a quiet mind and an assured future.

The employment manager is really the conscience of modern industry in practical action. In the old days when employers had but few workers and themselves worked side by side with them, every worker was individually known to his boss; his idiosyncrasies were understood; his ambitions were appreciated because they were like to the boss's ambitions. But now when workers, numbered by the thousands, are employed by a collective boss who is a mere list of stockholders, living perhaps thousands of miles from the works and knowing the workers only as items of profit or loss on a ledger, some substitute for the old personal touch must be found or industry will become, first, a congeries of unrelated items in reports, and, finally, mere anarchy. If modern industry is to be well-knit; is to understand and accomplish its real purposes, it must cultivate its conscience—the employment manager.

The usual method of business organization unfortunately has so far failed to take in this function as a distinct part of factory control. The foreman should not be charged with the responsibility of selecting his gang. Good management does not require that he do so. Factory after factory has demonstrated that if the foreman's power includes that of sending back an unsatisfactory worker to the employment manager for removal and replacement, that is sufficient for purposes of discipline. But when it is considered that the cost of securing and training each worker ranges from $10 to $200, and averages probably more than $60 each, a stupendous leak in the business which still clings to the antiquated foremanship hiring-and-firing method, is disclosed. Moreover, a competent employment management reduces industrial misunderstanding and friction quite noticeably. In these days, when every nerve must be strained to secure the highest possible output, no wise factory manager will ignore such a means of keeping the industrial peace.

Employment management differs from public employment service. Some employers have been limiting their employment management to the status of mere labor-recruiting agencies. That work should be left to an employment agency whose function is to find the labor and sift it in a preliminary way, offering those workers who seem likely to suit to the employment manager for his more intimate knowledge of the factory's needs, his more thorough methods of selection. The employment manager cannot be dispensed with in favor of the public employment agency any more than the public employment agency in this day of national need can be evaded. It is the plainest common sense to counsel that every industrial concern immediately secure the best possible employment manager and place upon him the authority and responsibility of a direct delegate from the highest command in the establishment. With any less authority, the employment manager is almost sure to fail.

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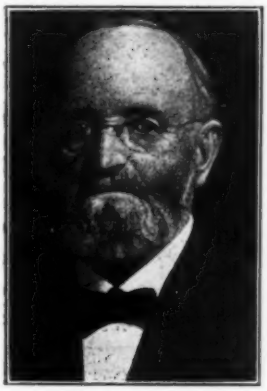
[1] Director, Training and Dilution Service, U. S. Department of Labor.

THE OBITUARY RECORD.

A PIONEER IN WIRE AND CABLE INSULATION.

HENRY A. REED, president of the Bishop Gutta Percha Co., of New York, died at his home in Newark, New Jersey, in his ninety-first year, on August 23, 1919. He was affected by the heat on July 4 and had been ill ever since. Mr. Reed was born in Carmel, New York, February 11, 1829. At 17 he began to teach school and to learn telegraphy, and in 1849 was put in charge of the telegraph office at Carmel, from which he was transferred to New York City and later to Poughkeepsie. There he established a bookstore also, which he kept up till 1876. Then he took up expert accounting and was employed by the Bishop Gutta Percha Works and became secretary in 1885, treasurer in 1893, and president in 1905, a position he retained until his death. Last spring the company celebrated at Newark his ninetieth birthday and at the same time the fiftieth birthday of his son, Henry D. Reed, vice-president of the company.



HENRY A. REED.

Mr. Reed was always interested in electrical science and its development. As he believed that rubber was better than gutta percha for insulation, except under water, he employed a competent engineer to design machinery to insulate wire and cables with rubber. He collaborated with the United States Light-House Board in 1887 in devising a system of lighting channels with electricity by buoys and range lights. In 1888 he designed the first high-tension cable to be used underground. He was first in America to test faults by the galvanometer.

Mr. Reed was one of the organizers of the Electric Club in New York. There he exhibited the first perfected phonograph made by Mr. Edison. He also helped to organize the Electric Trade Society and was a member of the American Institute of Electrical Engineers. He is survived by his widow, three sons and a daughter.

A FORMER WEBBING MANUFACTURER.

Horatio Nelson Starkey, an old-time elastic webbing manufacturer, died at Dedham, Massachusetts, August 16, 1919, aged 60 years. He was born in Attleboro, Massachusetts, and was the son of the late Henry C. Starkey, who was a pioneer in the elastic web business and with whom the son associated himself, afterwards succeeding him, having a factory in Chelsea, Massachusetts. His health failing, he retired from business about ten years ago. He leaves no near relatives.

ACTIVE IN RUBBER EXPLORATIONS.

Charles R. Lamson, prominent in the crude rubber trade ten or twenty years ago, died at a hospital in Beverly, Massachusetts, August 9.

Mr. Lamson was for several years stationed at Manaos, Brazil, as agent for Henry A. Gould, and later, did much exploring in Ecuador and Colombia, searching out new fields for the exploitation of crude rubber. In 1904 he was one of the party headed by Henry C. Pearson on a tour of investigation in Panama, an account of which appeared in THE INDIA RUBBER WORLD. In that series of articles he was known as "The Commodore."

In the spring of 1918, anxious to serve his country, he entered the service of the Food Administration at Washington and when that body ceased to exist he became Latin American trade expert for the United States Shipping Board, a position for which he was ably qualified by his South American acquaintance and experience.

He was taken ill in Washington early last month and arriving at his home at Beverly, was in such condition that he was taken to the hospital there, living only a few days. He leaves his widow, and one son, Charles W. Lamson, who served a year and a half in the great war with the 26th Division, returning last April.

SUBSTITUTE FOR EBONITE AND BAKELITE.

Ebonite in its various forms and kinds, such compositions as bakelite, wenjacite, gallalite, eburin, rivolite, pertinax, and the like, possess a great number of properties rendering them eminently suitable for the manufacture of a great many articles.

These materials may be divided into two large groups, namely, ebonite derived from rubber and phenolformaldehyde condensation products. A new Dutch process has recently been patented in England[1] for the manufacture of a cheap product, said to combine all the good qualities of the above-mentioned materials. The following example is given to illustrate the process:

Five parts resin and three parts paraffine are added in successive quantities and are melted in ten parts by weight of boiled linseed oil. To this twenty-five parts by weight of rubber waste in a finely divided state are added. The mixture is heated and stirred until the rubber is dissolved in the pulp. It is then allowed to cool, and a mixture of the following materials is added: eight parts sulphur, ten parts infusorial earth, ten parts bone-black, three parts magnesia, and fifty parts clay. The mixture is thoroughly intermingled by the aid of a heated roller mixing mill, sheeted on the calender, then, if required, put into the mold, pressed, and finally vulcanized for a period of two hours or less with the aid of steam.

It is stated to be possible to manufacture from rubber waste a hard kind of india rubber along these new lines that possesses all the good qualities of ebonite. It is a first-rate insulating material, and, according to experiment, it even surpasses considerably in dielectric strength the insulation-resistance properties of ebonite itself; it is not combustible; it may be made in every degree of hardness, indeed a degree of hardness may be given it that materially exceeds that of ebonite; it is elastic, and may be manufactured in such a way that after having been heated adequately it assumes the shape into which it is bent, which shape is retained after cooling. However, if desired, it may be caused not to become noticeably softer or more flexible. It is admirably adapted to be worked, as by planing, milling, drilling, pressing, sawing, burnishing and polishing. It may be made in every desired color, more conveniently than can ebonite, and, in contradistinction to the latter, it is proof against the influence of sunlight. Moreover, it resists the influence of cold and even of hot oil. It is practically insoluble and indifferent to acids, alkalis, and salts. Vulcanization may be effected either with or without the use of metal molds. ("The India Rubber Journal," February 8, 1919.)

FRENCH RUBBER ASSOCIATIONS.

The *Société Finacière des Caoutchoucs,* which, until recently, was the only continental rubber trust that was modeled upon the British trusts, and handled the stocks of plantations in the Malay States and in the Dutch East Indies, has split in two. One portion holds to the old name, and has transferred its headquarters from Antwerp to Brussels, with offices in Paris at 74 rue Saint Lazare. The other portion has been incorporated under the name *Société Internationale de Plantations et de Finances.* (S. I. P. E. F.) A. Berthelot is president of the Financière, and E. Bunge of the S. I. P. E. F.

[1] British patent No. 118,270.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(730.) An inquiry has been received for the address of a concern which a year or two ago manufactured and put on the market a small instrument for determining the hardness and softness of rubber.

(731.) A reader requests information as to who manufactures an electrically heated mold press.

(732.) A subscriber asks for information about a cord-lined paper for wrapping tires.

(733.) The name and address of the company manufacturing the Mathern tire-wrapping machine is desired by a tire manufacturer.

(734.) An inquiry has been received for a machine for winding bicycle tape.

(735.) A reader asks the names and addresses of stationery rubber brokers who handle rubber bands in large quantities.

(736.) The names and addresses are desired of manufacturers of automobile, motorcycle, and bicycle valves such as are used for inner tubes in foreign countries.

(737.) Request is made for the names and addresses of manufacturers of rubber strips for joining the fabric strips used in tire building.

(738.) A foreign manufacturer requests the name and address of the manufacturer of a machine for making black-and-red striped tubing.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce or its district or cooperative officers. Request for each should be on a separate sheet, and state number.

(29,989.) An agent in Ireland desires to represent American manufacturers of rubber, mechanical and general lines, including tires.

(30,012.) A man in Mesopotamia, expecting to purchase if suitable, desires quotations f. o. b. American port, on up to fifty, fifteen-hundredweight autocar lorries with pneumatic tires and a proportion of spares.

(30,015.) A company in Switzerland wishes to secure the agency for the sale of rubber tires. Quote f. o. b. New York or c. i. f. French or Italian ports. Correspondence may be in English.

(30,017.) The representative of an English firm is in this country to secure agencies for the sale of rubber-making machinery.

(30,036.) A firm in Norway desires the agency for the sale of rubber and rubber goods. Quote c. i. f. Norwegian port. Correspondence may be in English.

(30,042.) The representative of an English firm is in this country and wishes to purchase and to secure the agency for the sale of rubber goods in Siberia.

(30,088.) The purchase and agency is desired by a man in Czechoslovakia for rubber tires, weight immaterial, millimeter dimensions 815 by 105, 820 by 120, 880 by 120, 895 by 120, 760 by 100, and 710 by 100, for touring cars and motor trucks. Two carloads are needed at once.

(30,118.) A manufacturing and wholesale firm in Sweden desires to purchase rubber, reclaimed rubber, rubber goods, machines, tools and appliances for facilitating preparatory as well as finishing processes of manufacturing plants for rubber goods.

(30,133.) The purchase and sole agency is desired by a firm in Czechoslovakia for the sale of rubber tires. Payment to be made in United States currency.

(30,134.) An importing firm in Sweden desires the purchase of rubber footwear, on own account and on commission.

(30,216.) A wholesale dealer in the Netherlands desires to receive quotations from manufacturers for the purchase of rubber duck. Samples of the goods desired and may be examined at the Bureau or its district offices. (Refer to Miscellaneous Exhibit No. 207.) Correspondence may be in English.

(30,348.) The purchase is desired by a firm in Belgium of articles in India rubber. Quotations should be given c. i. f. Belgian ports. Terms cash or short term credit. Correspondence may be in French.

(30,393.) An importing company in India desires to come into direct touch with manufacturers of solid tires for busses and pneumatic tires for pleasure cars.

(30,406.) The representative of an automobile sales company in New Zealand is in the United States for a short time, and desires to secure an agency for the sale of rubber tires.

(30,411.) A firm in Spain desires to purchase balata belting. Correspondence may be in English.

(30,429.) An American who is established in France desires to secure agencies for the sale of tires.

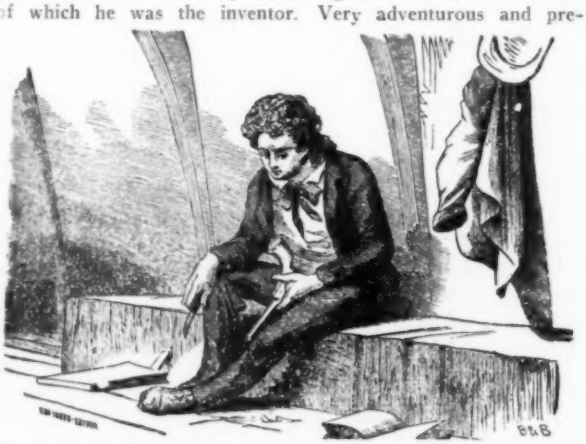
(30,431.) A man from Denmark who is in the United States for a short time wishes to secure an agency for the sale of rubber shoes.

(30,445.) A merchant in South Africa desires to receive catalogs, prices and samples of fountain pens and druggists' sundries.

(30,446.) An importer in Switzerland desires to purchase and secure an agency for the sale of tires. Correspondence may be in English.

COLONEL COLT'S INVENTIVE ANCESTOR.

A BIT OF INTERESTING HISTORY centres about the old-time wood-cut here reproduced. It pictures 14-year-old Samuel Colt, for whom Colonel Samuel P. Colt was named. The boy is shown aboard ship fashioning a model of the revolver of which he was the inventor. Very adventurous and precocious, he had run away to sea when only ten years old. After seeing the world and inventing the revolver, he returned home, secured patents and later founded the great fire-arm company that bore his name. Incidentally, during the Civil War he invented an insulating compound and did considerable in wire insulation.



(From an old wood-cut.)

THE BOY COLT INVENTING THE REVOLVER.

PACIFIC-FAR EAST FREIGHT TARIFF NO. 16-D.

New rates for freights from Pacific ports to the Far East, namely Hongkong, Shankhai, Kobe, Yokohama and Manila, have been issued by the United States Shipping Board, effective August 15. Boots, shoes and rubbers are 45 cents per cubic foot; pneumatic tires, 31¼cents; and solid tires 25 cents. Junk, including old rubber, $1 per hundredweight or 50 cents per cubic foot.

Activities of The Rubber Association of America.

THE ACTIVITIES OF THE RUBBER ASSOCIATION were necessarily curtailed to come extent during the month of August because of the general midsummer dullness and vacations, resulting in difficulty to secure representation for the meetings.

ASSOCIATION HAS FREIGHT RATE EXPERT.

R. H. Goebel, who has had many years' service with joint freight rate and tariff organizations of the railroads, particularly in the East, has been secured by the Association as a freight rate expert. The Association will now be in a position to render assistance of an executive nature to its members in connection with freight traffic problems. These primarily relate to changes in rates and classifications involving maintenance of rate levels, and rate advices to members who have not felt justified in building up their own traffic organizations. This work may include analysis of rate conditions with respect to sales distribution and general information regarding traffic or transportation details.

DOCKETS FOR ALL DIVISION AND OTHER GENERAL MEETINGS.

A plan which was found to be very practicable and conducive to a more businesslike procedure in the meetings of the Traffic Division will be put in operation at future meetings of divisions of the Association.

It consists in the preparation of an informal typewritten docket of subjects requiring the attention of division meetings, covering as briefly as possible a statement of the matter involved. This plan makes it possible to conduct the meeting in a more orderly manner and enables members to take with them or have sent to them by the secretary after the meeting this summarized record of the subjects considered, which will be supplemental to the regular minutes that are mailed from the association office.

Furthermore, it will be of assistance to the association office in its endeavor to become of greater value to the industry by keeping closely in touch with the subjects in which the several divisions are interested.

To make this arrangement useful it is necessary that the association office be advised, prior to any meeting, of the subjects which members desire to have brought before the meeting for discussion, but it is not contemplated that only matters which are included in the informal docket will be given consideration because there will always be opportunity for the presentation of any matter of interest at the time of the meeting.

MEETING OF SPECIFICATION COMMITTEE OF OLD WAR SERVICE COMMITTEE.

A meeting of the Specification Committee of the old War Service Committee, of which Dr. Geer is chairman and N. S. Noble, Secretary, was held at the offices of The B. F. Goodrich Co. on August 8. Preliminary steps were taken toward organizing the Specification Committee as a permanent branch of the association in order to put it on a more substantial footing, as it was felt that there was a real field for the work it might do.

Positive action was taken with respect to the working out by the Specification Committee with the United States Railroad Administration and other departments of the Federal Government of standard specifications for certain items in the mechanical goods line.

"CLEARSKIN" RUBBER SPONGES.

Following the usual procedure which makes the office of the Rubber Association the medium for disseminating advice of this sort, The Miller Rubber Co., Akron, Ohio, has announced that it has registered at Washington the coined word "Clearskin," to be applied to rubber sponges of their manufacture.

ASSOCIATION'S TWENTIETH YEAR BOOK.

Work on the Association's Twentieth Year-Book is progressing as rapidly as possible. The publication is already long overdue as a result of a change in organization and other circumstances which could not be controlled.

ARBITRATIONS.

Only one arbitration proceeding was conducted during August, and that involved alleged non-fulfillment of contract conditions in respect to a specified time delivery. The arbitrators' award was in favor of the seller of the crude rubber and to the effect that the terms of the contract had been complied with.

MEETING OF RUBBER CLOTHING MANUFACTURERS' DIVISION.

A call has been issued for a meeting of the Rubber Clothing Manufacturers' Division at the Yale Club, New York City, September 4. The feeling is evident that the present state of affairs in the trade makes it desirable that the general situation be reviewed and an interesting meeting is looked for.

MEETING OF RUBBER RECLAIMERS' DIVISION.

An endeavor is being made by the officers of the Rubber Reclaimers' Division to arrange for a day's outing in connection with the next meeting of that division, which is contemplated for Tuesday, September 9. The proposal is to spend the day at one of the prominent Long Island Clubs, where the meeting might be held in the morning, upon arrival, and the remainder of the day spent at golf, tennis, bathing, etc., for which the facilities of the club are unusually fine. If, however, the outing idea is found to be impracticable, the meeting will be held September 9, at the Yale Club, New York City. A general discussion of trade conditions is contemplated.

MEETING OF PNEUMATIC TIRE MANUFACTURERS' DIVISION.

There is in contemplation a meeting of the Pneumatic Tire Manufacturers' Division to be held about the middle of September, but it is not yet possible to decide upon the date. There are an unusual number of important subjects involving trade principles and practices which will come before the division for consideration and the meeting will doubtless be an interesting one.

FEDERAL EXCISE TAX. RECENT RULINGS BY THE TREASURY DEPARTMENT.

NEW YORK, July 26, 1919.

To the firm members of the Rubber Association of America:

The following rulings have just been released by the Treasury Department:

TREASURY DECISION NO. 2893. APPROVED JULY 17, 1919.

(1) ARTICLES CONSIGNED TO RETAILER—The last sentence of Article 8 of Regulations 47 is hereby amended to read as follows:

Where a manufacturer consigns articles to a retailer, retaining ownership in them until they are disposed of by the retailer, the manufacturer must pay the tax upon the basis of the manufacturer's selling price on all goods sold to the retailer, as shown by reports to be procured by him monthly from the retailer.

(2) Tires, inner tubes, part or accessories: Article 14 of Regulations 47 is supplemented by adding thereto the following:

The words "tires, inner tubes, parts, or accessories" shall be understood to embrace only such tires, inner tubes, parts, or accessories as have reached such a stage of manufacture that they constitute articles commonly or commercially known as "tires, inner tubes, parts, or accessories," and shall not be understood to embrace raw materials used in the manufacture of such articles. Unvulcanized sheet rubber, liquid vulcanizing, rubber cement, and friction fabrics are considered to be raw materials and are exempt from tax.

* * *

(4) PARTS OF ACCESSORIES—Article 16 Regulations 47 is supplemented by adding thereto the following:

Parts or accessories for automobile trucks, automobile wagons, other automobiles, or motorcycles primarily adaptable for use on or in connection therewith when sold for any other purpose are not taxable provided the purchaser files with his order a statement that such parts or accessories are to be used on or in connection with another article of commerce not enumerated in or included in subdivision (1), (2), (3), of Section 900. For example, a self-starter primarily adaptable for use on an automobile, if sold to a manufacturer of motor boats, such manufacturer stating in his order that it is to be used in the manufacture of a motor boat and not upon an automobile, is not taxable.

TREASURY DECISION 2697. APPROVED JULY 22, 1919. TAX APPLIES TO SALES TO STATES OR POLITICAL SUB-DIVISIONS THEREOF.

To Collectors of Internal Revenue and Others Concerned:

Under an opinion of the Attorney General, dated July 7, 1919, manufacturers, producers, and importers are declared to be subject to the excise tax imposed by Section 900 of the Revenue Act of 1918 upon sales made to a State or a political sub-division thereof except as provided in sub-division (10) of such section.

In accordance with the above opinion, manufacturers, producers, and importers are subject to excise tax under Section 600 of the Revenue Act of 1917, and Section 900 of the Revenue Act of 1918 upon all sales of taxable articles made to States or political sub-divisions thereof except where specifically exempt from tax upon such sales, as under sub-division (10) of Section 900 of the Revenue Act of 1918. In addition to liability to tax under the above sections, manufacturers, producers, importers and vendors are held to be liable to tax upon all sales of taxable articles made to States or political sub-divisions thereof under Section 313 of the Revenue Act of 1917, and under Sections 628, 902 and 905 of the Revenue Act of 1918; and lessors of positive motion picture films containing pictures ready for protection are subject to tax upon amounts received from the leasing of such films to States or political sub-divisions thereof under Section 906 of the Revenue Act of 1918. Where an excise tax is imposed directly upon the vendee as under Sections 904 and 907 of the Revenue Act of 1918, sales to States or political sub-divisions thereof are exempt from tax.

Article 10 of Regulations 47 is amended to read as follows:

Article 10—Sales to the Government or a state: The tax applies to articles enumerated in Section 900 when sold to the Government. Where, however, the Government supplies a manufacturer with all materials and parts, except a small portion furnished by the manufacturer under a contract stipulating that the manufacturer shall be guaranteed a certain profit, no tax is payable because the manufacturer does not sell the article. Articles manufactured in plants taken over and operated by the Government are not subject to the tax. The tax also applies to articles enumerated in this section, except to those enumerated under sub-division (10), when sold to a state or political sub-division thereof even though they are to be paid for entirely out of public moneys and are to be used in carrying on governmental operations.

A. L. VILES, General Manager.

FEDERAL EXCISE TAX—TAXABILITY OF RADIATOR, AIR, PUMP AND GASOLINE HOSE, GENERATOR TUBING, BRAKE-BAND LININGS, AND PACKING.

NEW YORK, August 25, 1919.

To the firm members of The Rubber Association of America, Inc.:

The Rubber Association is advised that the following letter was recently sent out by the office of the Commissioner of Internal Revenue:

Replying to your letter regarding the taxability of radiator, air pump and gasoline hose, generator tubing, brake-band linings, and packing, under Section 900, Subdivision (3), of the Revenue Act of 1918:

Brake band linings, packing and gasoline hose have been held not subject to tax as automobile parts or accessories under Section 900, Subdivision (3), of the Revenue Act of 1918. Generator tubing, and air pump and radiator hose are not subject to tax as automobile parts or accessories unless specially designed, cut to length, and equipped with fittings making the hose available only for use on or in connection with automobiles.

It will be noted that it is held in the above letter that the hose in question is not subject to the tax unless specially designed, cut to length, and equipped with fittings making the hose available only for use on or in connection with automobiles.

A. L. VILES, General Manager.

MANUFACTURERS WHO HAVE SIGNED THE AGREEMENT.

The following-named manufacturers, members of The Rubber Association of America, Inc., have signed the agreement to pay to the Association through importers the fee of 3 cents per hundredweight on all crude rubber purchased by them.

A.

Acme Rubber Mfg. Co., The
Acushnet Process Co., Inc.
Advance Rubber Co.
Ajax Rubber Co.
Amazon Rubber Co., The
American Hard Rubber Co.
Apsley Rubber Co.
Archer Rubber Co.
Archer Tire & Rubber Co.
Armstrong Rubber Co., Inc., The
Avon Sole Co.

B.

Batavia Rubber Co., The
Baumann Rubber Co., The
Beacon Falls Rubber Shoe Co.
Beacon Tire Co., Inc.
Besaw Tire & Rubber Co., The
Bishop Gutta-Percha Co.
Boston Belting Corporation.
Boston Blacking Co.
Boston Woven Hose & Rubber Co.
Bourn Rubber Co.
Braender Rubber & Tire Co.
British-American Mfg. Co.
Brunswick-Balke-Collender Co.

C.

Cambridge Rubber Co.
Canadian Consolidated Rubber Co., Ltd.
Canfield Company, The H. O.
Canton Rubber Co., The
Carlisle Cord Tire Co., The
Carlisle Tire & Rubber Co.
Carr Rubber Co., F. S.
Century Rubber Works.
Century-Plainfield Tire Co.
Chicago Rubber Clothing Co.
Chippewa Rubber Co.
Cincinnati Rubber Mfg. Co., The
Clifton Manufacturing Co.
Columbia Tire & Rubber Co., The
Combination Rubber Mfg. Co., The
Continental Rubber Works.
Converse Rubber Shoe Co.
Corona Rubber Mfg. Co.
Cortland Tire & Rubber Co.
Crescent Insulated Wire & Cable Co.
Cross Country Tire Co.
Cupples Co.
Curtis Tire & Rubber Co.

D.

Davidson Rubber Co.
Davol Rubber Co.
Dayton Rubber Mfg. Co.
Delion Tire & Rubber Co.
Doherty Rubber Works, Inc., Eugene
Doss Rubber & Tube Co.
Dreyfus Co., L. A.
Dryden Rubber Co.
Du-Pont-Fabrikoid Co.
Dural Rubber Corp.
Duratex Co., The

E.

Eagle Rubber Co., The
Easthampton Rubber Thread Co.
Electric Cable Co., The
Electric Hose & Rubber Co.
Elkhart Rubber Works
Empire Tire & Rubber Corp.
Essex Rubber Co.
Eureka Rubber Mfg. Co., Inc.

F.

Faber Rubber Co., Eberhard
Falls Rubber Co., The
Faultless Rubber Co., The
Featheredge Rubber Co.
Federal Rubber Co., The
Firestone Tire & Rubber Co.
Fisk Rubber Co., The

G.

Gates Rubber Co.
General Rubber Co.
General Tire & Rubber Co., The
Giant Tire & Rubber Co.
Gillette Rubber Co.
Globe Rubber Tire Mfg. Co.
Goodrich Co., The B. F.
Goodyear Rubber Co.
Goodyear Rubber Insulating Co.
Goodyear Tire & Rubber Co., The
Gordon Tire & Rubber Co., The
Gregory Rubber Co., The

H.

Habirshaw Electric Cable Co., Inc.
Hale Rubber Co., Alfred.
Hamilton Rubber Mfg. Co.
Hardman Rubber Corp.
Hauthaway & Sons, C. L.
Hawkeye Tire & Rubber Co., The
Hazard Manufacturing Co.
Hazen-Brown Co.
Hewitt Rubber Co.
Hodgman Rubber Co.
Home Rubber Co.
Hood Rubber Co.
Howe Rubber Co.

I.

Indiana Rubber & Insulated Wire Co.
Inland Rubber Co.
International India Rubber Corp.

J.

Jenkins Rubber Co.

K.

Kaufman Rubber Company, Ltd., The.
Kelly-Springfield Tire Co.
Keystone Rubber Mfg. Co.
Kleinert Rubber Co., I. B.
Kokomo Rubber Co.

L.

Lancaster Tire & Rubber Co., The
Lee Tire & Rubber Co.
Lion Tire & Rubber Corp., The
Long-Wear Rubber Co., The
Lovell Manufacturing Co.
Luzerne Rubber Co., The

M.

McCreary Tire & Rubber Co.
McGraw Tire & Rubber Co., The
McLean Tire & Rubber Co.
Mansfield Tire & Rubber Co., The
Marathon Tire & Rubber Co., The
Marion Tire & Rubber Co.
Mason Tire & Rubber Co., The
Massillon Rubber Co., The
Meade Rubber Co.
Mercer Rubber Co.
Michelin Tire Co.
Miller Rubber Co., The
Mishawaka Woolen Manufacturing Co.
Mohawk Rubber Co., The
Monarch Rubber Co., The
Mystic Rubber Corp.

N.

National Rubber Co.
National Tire & Rubber Co.
Needham Tire Co.
Newark Rubber Co.
New Jersey Car Spring & Rubber Co., Inc.
New York Insulated Wire Co.
New York Mackintosh Clothing Co.
Norwalk Tire & Rubber Co., The

O.

Oak Rubber Co., The
O'Bannon Corp.
Omo Manufacturing Co., The
Okonite Company, The
Owen Tire & Rubber Co., The

P.

Panther Rubber Manufacturing Co.
Parker, Stearns & Co.
Partridge Rubber Co., Ltd., The F. E.
Pennsylvania Rubber Co.
Pharis Tire & Rubber Co., The
Phoenix-Hermetic Co.
Phoenix Rubber Co., The
Pines Rubber Co., Inc.
Pioneer Rubber Mills.
Plymouth Rubber Co.
Polack Tyre & Rubber Co.
Polson Rubber Co., The
Porter Rubber Co., The
Portage Rubber Co., The
Portland Rubber Mills

Q.

Quabaug Rubber Co.
Quaker City Rubber Co.

R.

Racine Auto Tire Co.
Ravenna Rubber Co., The
Raybestos Co., The
Ray Tire & Rubber Co.
Reading Rubber Mfg. Co.
Republic Rubber Corp., The
Rex Hide Rubber Mfg. Co.
Roberts Rubber Co., Weldon.
Rosenwald & Weil
Rubber Products Co., The
Ryan Ideal Stain & Blacking Co.

S.

Samson Tire & Rubber Corp.
Savage Tire Co., The
Schacht Rubber Mfg. Co.
Schwarzwaelder Co., The
Scioto Rubber Co., The
Seamless Rubber Co., Inc., The
Simplex Wire & Cable Co.
Sioux City Tire & Mfg. Co.
Somerset Rubber Reclaiming Works
Spalding & Bros., A. G.
Sprague Tire & Rubber Co.
Stamford Rubber Supply Co., The
Standard Four Tire Co.
Standard Underground Cable Co.
Star Rubber Co., The
Sterling Tire Corp.
St. Mungo Mfg. Co., of America.
Stowe & Woodward Co.
Strauss Rubber Co., Archer
Surety Tire & Rubber Co.
Swinehart Tire & Rubber Co., The

T.

Thermoid Rubber Co.
Traun Rubber Co.
Twin Tube & Rubber Co.
Tyer Rubber Co.

U.

United & Globe Rubber Co.
United States Rubber Co.

V.

Van Cleef Bros.
Victor Balata & Textile Belting Co.
Victor Rubber Co., The
Voorhees Rubber Mfg. Co.
Vulcan Proofing Co., The
Vulcanized Rubber Co., The

W.

Western Reserve Rubber Co., The
Western Rubber Co.
Whitall Tatum Co.
White Dental Mfg. Co., The S. S.
Whitehead Bros. Rubber Co., The
Whitney Blake Co., The
Worthington Ball Co., The

Z.

Zee Zee Rubber Co.

News of the American Rubber Industry.

DIVIDENDS.

THE American Zinc, Lead & Smelting Co., St. Louis, Missouri, and New York City, declared its regular quarterly dividend of $1.50 per share, payable August 1, 1919, on preferred capital stock of record July 28, 1919.

The Brunswick-Balke-Collender Co., Chicago, Illinois, declared its regular quarterly dividend of one and three-quarters per cent, payable August 15 on stock of record July 25, 1919.

E. I. du Pont de Nemours & Co., Wilmington, Delaware, declared a dividend of one and one-half per cent, payable July 25 on its debenture stock of record July 10, 1919.

The General Electric Co., Schenectady, New York, has declared its quarterly dividend of two per cent, payable October 15 on stock of record September 15, 1919.

The B. F. Goodrich Co., Akron, Ohio, declared a quarterly dividend of $1.75 per share, payable October 1 on preferred stock of record September 19, 1919.

The Goodyear Tire & Rubber Co., Akron, Ohio, declared its quarterly dividend of three per cent, payable September 1 on stock of record August 15, 1919.

The Hood Rubber Co., Watertown, Massachusetts, declared a quarterly dividend of $1.75 per share, payable August 1 on preferred stock of record July 21, 1919.

The Manufactured Rubber Co., Philadelphia, Pennsylvania, declared its quarterly dividend of one and one-half per cent, payable July 28 on stock of record July 23, 1919.

FINANCIAL NOTES.

The B. F. Goodrich Co. has more than doubled the asset value of its common stock in three years, entirely from earnings. On December 31, 1918, total assets amounted to $107,916,441. Deducting $57,798,001 for good will and patents, $16,770,900 current liabilities, $8,347,540 reserves, etc., and $25,000,000 preferred stock there remained $33,321,986 balance of assets behind the common or more than $55 a share. At the close of 1915 total assets were $94,722,634. Good will and patents were then carried at $58,219,992, current liabilities $4,402,642, reserves, etc., $4,100,000 and preferred stock $28,000,000. Deducting these items there remained $12,363,598 or about $20 a share as the asset value of the $60,000,000 common outstanding.

For the six months ended June 30 last, net profits after all charges but before federal taxes were $7,700,000. For the corresponding period last year net profits before taxes were $7,150,000. At the current rate, earnings for the full year would approximate $15,500,000, which after preferred dividends would be equal to more than $21 a share on common before taxes.

* * *

Firestone Tire & Rubber Co. is expected to show gross sales for the fiscal year ending October 31, 1919, of upwards of $90,000,000, which would compare with $75,801,000 for the 1917-1918 year.

Net profits after depreciation, but before Federal taxes, will probably approximate $10,000,000, which would be equal to about $27 a share on the 350,000 shares of common stock after preferred dividends. Firestone sales have come up from $7,462,000 in 1910-1911.

* * *

The listing last month of The Fisk Rubber Co.'s shares on the New York Stock Exchange is a testimonial to the rapid advance in financial and industrial power of the Springfield company. Four years ago Fisk produced 1,000,000 tires and tubes a year. This year the production will be 2,000,000. In 1915 sales were $16,203,283 and net profits $1,791,579. Estimated sales for 1919 are $45,000,000 and net profits, $4,250,000. Including sales of the Federal Rubber Co., subsidiary, the Fisk system should turn over $60,000,000 this year.

* * *

Net earnings of the United States Rubber Co. for the six months from January 1st to June 30th, 1919, after deducting all interest charges and after allowing for depreciation, Federal taxes and reserves, were $10,815,750.33.

* * *

Brunswick-Balke-Collender Co. reports sales for six months ended June 30, of $10,061,375, against $5,327,136 a year ago.

* * *

The Miller Rubber Co., Akron, Ohio, has just sold $1,000,000 worth of preferred stock, and its directors recently passed a resolution approving the sale of approximately $800,000 worth of common stock. This makes the total capitalization of the company as follows: First preferred, $7,500,000; second preferred, $3,000,000; and common, $10,000,000.

MADISON TIRE AND RUBBER CO., INC.

The authorized capitalization of the Madison Tire & Rubber Co. will be $2,000,000 eight per cent preferred stock (par value $100) and 120,000 shares of common stock (of no par value). Of this there will presently be issued all of the preferred stock and 86,600 shares of the common. The preferred stock shares are convertible at option of the holder at any time until July 1, 1929, into common stock shares of the company, share for share, at par.

The company starts business with net assets of $3,500,000 and plant capacity daily of 1,200 tires and 2,000 tubes.

In the distribution of its product the company will be represented in practically all important cities in the country.

The officers are: Rudolph A. Low, president; Theo. W. Bassett, vice-president; Max Loewenthal, treasurer; and Clarence H. Low, secretary.

RUBBER COMPANY SHARE QUOTATIONS.

The following rubber stock quotations on August 20, 1919, are furnished by John Burnham & Co., 41 South La Salle street, Chicago, Illinois:

	Bid.	Asked.
Ajax Rubber Co.	100½	102½
Firestone Tire & Rubber Co., common	165	175
Firestone Tire & Rubber Co., preferred	99	101½
Fisk Rubber Co., The, common	44	46
Fisk Rubber Co., The (new), 1st preferred	99	101
Fisk Rubber Co., The, 2nd preferred	160	175
Goodrich Co., The B. F., common	76½	77½
Goodrich Co., The B. F., preferred	102¾	104¾
Goodyear Tire & Rubber Co., The, common	335	345
Goodyear Tire & Rubber Co., The, 1st preferred	105	107
Goodyear Tire & Rubber Co., The, 2nd preferred	106½	108
Kelly-Springfield Tire Co., common	125	127
Kelly-Springfield Tire Co., preferred	95	97
Lee Tire & Rubber Co.	29½	30½
Marathon Tire & Rubber Co.	...	55
Miller Rubber Co., The, common	214	222
Miller Rubber Co., The, preferred	103	106
Rubber Products Co.	145	151
Portage Rubber Co., common	143	148
Swinehart Tire & Rubber Co.	85	90
United States Rubber Co., common	128⅜	129⅜
United States Rubber Co., preferred	116½	117½

FOUR YEARS OF INDUSTRIAL EXPANSION

During the four-year period from December 31, 1914, to December 31, 1918, the 104 leading American industrial companies, despite heavy expenditures for new construction and acquisitions, and record-breaking dividends, added a total of nearly $2,000,000,000 to their working capital, most of it from surplus earnings.

This explains in large measure the material appreciation in the market value of industrial securities, yet many are still sell-

ing far below their respective intrinsic value based upon actual addition to asset value over the last four years.

Rubber and tire companies prospered during the war, and their expansion still continues. The B. F. Goodrich Co. increased its working capital from $19,037,977 in 1914 to $43,024,619 in 1918, a gain of 125 per cent, and the surplus after dividends was equivalent to $55.52 a share. The Goodyear Tire & Rubber Co. increased its capital from $10,724,323 to $55,655,663, a gain of 418 per cent, and the surplus after dividends was equal to $146.44 a share. The Kelly-Springfield Tire Co. increased its capital from $2,435,491 to $8,382,681, a gain of 224 per cent and added $33.45 to the value of its common stock. The United States Rubber Co. increased its capital from $41,423,828 to $101,552,038, a gain of 145 per cent and added $82.70 to the value of the common stock. A large part of the increase in assets of the foregoing companies was due to new financing.

Among allied trade firms there was also much expansion. The Corn Products Refining Co. increased its capital from $8,996,186 to $23,896,300, a gain of 166 per cent, and the surplus after dividends was $32.60 per share of common stock. The E. I. du Pont de Nemours & Co. increased its capital from $35,132,736 to $186,001,738, a gain of 429 per cent, and added $154.16 to the value of its common stock. The General Electric Co. increased its capital from $104,624,462 to $189,302,514, a gain of 81 per cent, and added $28.62 to the value of its stock. The Westinghouse Electric & Manufacturing Co. increased its capital from $32,605,769 to $91,322,867, a gain of 180 per cent, but the value of its common stock sustained a deficit occasioned by payment of $15,688,992 cash and stock common dividends.

PERSONAL MENTION.

J. K. Carr, who became vice-president and general manager of the B. C. Tillinghast Rubber Co., Inc., 236 Market street, Philadelphia, Pennsylvania, at the death of the late B. C. Tillinghast, and who has ever since endeavored to combine with his duties as salesman on the road those of managing the business, has now retired, after 29 years on the road, and will devote all his time to the management of the company, with which he has been connected for 39 years.

Charles Hess, Jr., salesman for the B. C. Tillinghast Rubber Co., Inc., Philadelphia, Pennsylvania, will replace J. K. Carr on the road.

John W. Higgins, for two years general foreman of the machanical rubber goods department of The Federal Rubber Co. of Illinois, Cudahy, Wisconsin, has resigned to accept a position with the druggists' sundries department of The B. F. Goodrich Co., Akron, Ohio.

W. W. King and H. E. King of Typke & King, Limited, Mitcham, England, dealer in rubber-makers' chemicals, were in New York City recently.

H. S. Doty, formerly chief chemist of the Manhattan Rubber Co., and during the war a member of the Gas Defense Service, is now with Frazar & Co., New York City, as head of the chemical research department.

Orlando F. Weber has been elected president of the National Aniline & Chemical Co., succeeding William J. Matheson, who has been serving as chairman of the board of directors and president of the company since 1917 as a patriotic duty during the war, and has now accordingly resigned.

George B. Allan, Texas representative of the Yarnall-Waring Co., Philadelphia, Pennsylvania, who has been located at Houston, Texas, will hereafter make his headquarters in Dallas for the sale of "Yarway" fuel-saving specialties.

Harry D. Benner has been appointed manager of the accessory sales department of The Federal Rubber Co. of Illinois, Cudahy, Wisconsin.

Frank C. Risselt, formerly with the Cameron Machine Co., Brooklyn, New York, has become identified with the Spadone Machine Co., 126 Duane street, New York City, manufacturer of vertical bias cutters.

CHARLES J. DAVOL.

CHARLES JOSEPH DAVOL, the president and treasurer of the Davol Rubber Co., Providence, Rhode Island, is the son of the late Joseph Davol, who, in 1870, founded the great business now conducted by that corporation.

CHARLES J. DAVOL.

The subject of this sketch was born in Brooklyn, New York, April 14, 1868. He was educated in the public schools of Providence, and in preparation for a college course at Brown University, attended Mowry & Goff's Ensign and Classical School, graduating in the class of 1885. Meanwhile he abandoned the idea of a professional life, and, after several months of travel, entered his father's factory, where he worked his way through the various departments, thereby acquiring a thorough knowledge of the details of both the manufacturing and executive branches of the business, and was elected general manager.

He was close confidant and assistant of his father during the last ten years of the latter's life. At his father's death in 1909, he was elected president and treasurer, which offices he continues to hold. During the years he has had the management, the business has steadily grown, the plant has been greatly enlarged, its equipment thoroughly modernized and its scope of products widened until it is claimed that the concern is the largest manufacturer in the world of fine rubber surgical, dental, stationers' and druggists' sundries, and special articles used in many arts, crafts, and professions.

Mr. Davol is a man of varied activities. He is an ardent sportsman and dog fancier, and his estate, "Wildacres," at North Kingston, Rhode Island, is a fine shooting preserve. There also are the famous Wildacres Farm Kennels, noted for their pure strain of pointers, setters, and beagles. Mr. Davol is a member of the Pointer Club of America and the English Setter Club of America, the Agawam Hunt Club and the National Audubon Association of America.

He is an enthusiastic yachtsman, and near his estate, in the land-locked harbor at East Greenwich, Rhode Island, he maintains moorings for his palatial yacht "Paragon," of the power cruiser type. He is a member of no less than seven yacht clubs, namely, New York, Eastern, Boston, Larchmont, Rhode Island, Bristol, and East Greenwich.

He is fond of travel, and having made two voyages around the world, he is a member of the Circumnavigators' Club of New York, besides the Rocky Mountain Club and the National Geographic Society. As a descendant of early American settlers he is prominent in the Society of Mayflower Descendents, Society of Colonial Wars, Sons of the American Revolution and the Rhode Island Historical Society. His affiliations with business and local organizations include the Providence Athenaeum, the Commercial Club, the Economic Club, and the Rhode Island Hospital Corporation. Besides all these he is a life member of the Navy League of the United States and the American Defense Society and a member of the National Committee. He is a director of The Rubber Association of America, Inc., and chairman of the Rubber Sundries Division of that association.

TRADE NOTES.

The Pennsylvania Rubber Co., Jeannette, Pennsylvania, recently made for Fred Stone, the comedian, a set of tires bearing his autograph in bright red rubber on a jet-black tread.

The Continental Rubber Co., Erie, Pennsylvania, has sent out plans and specifications for a new power plant.

The Dryden Rubber Co., Chicago, Illinois, will build a new tire plant, to have an initial capacity of 1,000 tires and 1,000 tubes daily.

The M. & W. Tire Co., Inc., 1311 Woodward avenue, Detroit, Michigan, is incorporated in Michigan for the distribution of American-Akron tires, tubes, and sundries, wholesale and retail. The officers are: George J. Moebs, president; Herbert J. Woodall, vice-president; Charles J. Woodall, secretary and treasurer. The concern has a subsidiary known as The M. & W. Tire Repair Co., at 7 Harper avenue, Detroit, whose officers are: Herbert J. Woodall, president; George J. Moebs, vice-president; Charles E. Barton, secretary and treasurer. This subsidiary does repair work in general, in addition to selling standard makes of tires and tubes.

The Majestic Tire & Rubber Co., Indianapolis, Indiana, recently incorporated in Indiana, will manufacture a high-grade cord tire to be known as "Majestic" cord, and a high-grade tube. The officers of the company are: R. H. Syfers, president; E. B. Oscars, vice-president; O. C. Pantall, secretary-treasurer; J. B. Hilliard, superintendent and production manager. The company has increased its capital from $100,000 to $250,000.

The Independent Tire Co., Inc., St. Louis, Missouri, has opened a branch store under the same name, at 211 East Jefferson avenue, St. Louis, and has appointed Carl J. Reifler representative in that territory.

The Eastman Rubber Works, Inc., 213 West Fortieth street, New York City, has increased its capital from $200,000 to $500,000.

The Virginian Rubber Co., Charleston, West Virginia, recently incorporated in that state, will manufacture pneumatic cord tires known as the "Virginian," and dipped and pressed rubber goods. The officers are: A. A. Lilly, president; Houston G. Young, vice-president; and W. D. Guyer, secretary-treasurer. The company has purchased a factory site on the Kanawha river, comprising twelve acres of land, and is having plans and specifications drawn for both building and machinery. This is in the natural gas region, which offers an additional advantage.

The Latex Tire Co., Collins Block, Fond du Lac, Wisconsin, elected the following directors and officers at its first annual meeting: F. S. Dannenberg, president; J. T. Brofka, vice-president; J. T. Jones, secretary; and Orlando J. Kohl, treasurer; directors—T. W. Meiklejohn, J. T. Brofka, J. T. Jones, Grant Lambright, F. S. Dannenberg, Edward Yockey and Orlando J. Kohl. The factory site will be at East Scott and Main streets and building activities will start at once on a two-story structure.

The Evans Tire Co., Fort Wayne, Indiana, has incorporated The Evans Tire & Reliner Co., in that state, capitalized at $100,000, to make inner reliners and skived-edge boots for vulcanizing purposes, and rebuild tires by the Evans method. R. I. Evans is president and R. O. Beecroft, sales manager.

The Keystone Tire & Rubber Co., New York City, at its annual meeting of stockholders held August 1, 1919, reelected the following directors for the ensuing year: L. Walter Lissberger, Joel Jacobs, Sydney Bernheim, Nathan J. Miller, Julius Lichtenstein, Benjamin Lissberger, and Walter Loewenthal. At the organization meeting of the new board of directors, the officers of the company were also reelected, as follows: L. Walter Lissberger, president; Sydney Bernheim, vice-president; Joel Jacobs, treasurer; and Walter Loewenthal, secretary.

The Goodyear Cotton Mills, Inc., Killingly, Connecticut, is offering some of its cumulative preferred seven per cent stock to employes at $100 per share, on the instalment plan at $1 a week, and will allow new employes to subscribe at the time of entering the company's employ. Each employe who remains with the company is to be allowed a bonus of three per cent yearly.

The Story Rubber Corp., until recently at 1328 Broadway, New York City, has removed to a store at Broadway and Sixty-sixth street, under a long lease. All communications should be directed to the new address.

The London Rubber Co., Pittsburgh, Pennsylvania, is to be incorporated in that state in conjunction with the present business of A. L. London & Sons, manufacturers of rain coats, rubber cloths, inner tubes, etc., to manufacture high-grade tires and tubes. The officers of the new company are: A. L. London, C. M. London and H. London.

The Mohegan Tube Co., Scott avenue and Meserole street, Brooklyn, New York, is building a one-story addition to its plant, to cost about $75,000. New equipment is also being installed in some departments, and it is hoped that the company will be able to double its present capacity. The Mohegan company is now supplying the rubber trade with heavier gage seamless tubes instead of welded tubing.

The Standard Emarex Co., 208 South La Salle street, Chicago, Illinois, has discontinued its office at 185 Madison avenue, New York City.

The L. H. Butcher Co., Inc., 100 William street, New York City, has taken a long-term lease of the five-story and-basement building at 239 Front street, where it will consolidate its office and storage facilities and be enabled to carry increased stocks of its color, mineral, and chemical specialties.

The Acme Belting Co. and the United & Globe Rubber Co. have removed their Chicago branch, under the management of Elmer E. Bast, to 23 North Franklin street, Chicago, Illinois.

The L. A. Dreyfus Co., Rosebank, Staten Island, New York, manufactures and refines rubbers and gums.

The Dunning & Boschert Press Co., Inc., Syracuse, New York, manufacturer of presses, pumps, valves, etc., has increased its capital stock from $200,000 to $300,000.

The Acushnet Process Co., Inc., 52 Vanderbilt avenue, New York City, has increased its capitalization by authorizing the issuance of $195,000 worth of preferred stock to supply funds for increasing its capacity for reclaiming friction. It expects to double its capacity by the first of the year.

The Metal Hose & Tubing Co., Raymond and Tillary streets, Brooklyn, New York, has increased its capital from $15,000 to $300,000.

The Cupples Co., St. Louis, Missouri, will build extensive additions to its tire plant at the corner of Sixth and Spruce streets, according to plans drawn by the Osborn Engineering Co., Cleveland, Ohio.

CANADIAN NOTES.

The Canadian Consolidated Rubber Co., Limited, purposes to expend $1,000,000 in extending the Dominion Tire Factory, at Kitchener, Ontario. Two large additions are being built, one at each end of the present structure. It is hoped to double production with the new facilities and space.

The Gregory Tire & Rubber Co., Limited, Vancouver, has been incorporated in British Columbia, at $1,500,000 to manufacture tires, tubes and accessories, and will build a plant for this purpose. The officers are: J. A. Cunningham, president; Morton Gregory, vice-president; Frank Parsons, secretary; and S. A. Madge, treasurer.

N. S. Braden has been elected vice-president of the Canadian Westinghouse Co., Limited, Hamilton, Ontario. H. M. Bostwick succeeds him as sales manager.

J. I. Frank Anthes is establishing himself as a manufacturers' broker and agent for materials required by the rubber and leather shoe industries, his office being at 707 Drummond Building, Montreal, Quebec. Mr. Anthes has been connected with the Canadian Consolidated Rubber Co., Limited, ever since its establishment, in an executive capacity in its different footwear, mechanical, and tire factories.

UNITED STATES RUBBER CO. TO INCREASE CAPITAL STOCK.

AT A MEETING held August 7, 1919, the directors of the United States Rubber Company voted approval of several important recommendations of the chairman, Colonel Samuel P. Colt. A meeting of stockholders for ratification will be held at New Brunswick, New Jersey, September 9, 1919. Chief among the recommendations was an increase in the capital stock to $100,000,000 first preferred, $200,000,000 common, a total of $300,000,000, and the retirement of the second preferred, the greater part of which has already been acquired by the company.

The present authorized capitalization is $70,000,000 first preferred, $10,000,000 second preferred, and $40,000,000 common, a total of $120,000,000. Of this there is now issued and outstanding $63,022,100 first preferred, $403,600 second preferred and $36,000,000 common, a total of $99,425,700.

During the past five years the capital stock has remained substantially the same, while the volume of business transacted by the company has been increased in round numbers as follows: $83,000,000 in 1914; $92,000,000 in 1915; $126,000,000 in 1916; $176,000,000 in 1917; $215,000,000 in 1918.

The indebtedness of the company was funded in 1917 into long-term 5 per cent bonds. Surplus earnings for the years 1917 and 1918 were equivalent each year to about 30 per cent on the common stock, and the earnings for the first half of 1919 have been substantially the same as for the first half of 1918.

For the past two years the company has been unable to meet the demand for its tires, and notwithstanding the fact that its capacity has already been substantially increased, further construction has been authorized which will require in the neighborhood of $15,000,000 for its completion, and which will double the present capacity.

As the amount of the present outstanding common stock compared with the property of the company is relatively small, it is proposed that $36,000,000 of additional common stock be issued and offered to present common stockholders at par, in order to provide ample capital to meet the enlarged business of the company without the application of so large a proportion of earnings for that purpose as has been the case the past few years.

It is also recommended that dividends at the rate of 8 per cent per annum be paid upon the common stock beginning in October next, and further, that an extra distribution, either in stock or in cash, such as may be warranted under all conditions, be made early in 1920 to common stockholders.

The money to be obtained from the increased issue of stock will be used:

(1) To pay off all current indebtedness that can be paid (certain accounts payable and acceptances will always exist).
(2) For new construction planned and in process designed principally for the increase of the product of automobile and truck tires.
(3) For extension of rubber plantations in the East, and to facilitate the carrying of stock under profit sharing for benefit of employes.

NEW INCORPORATIONS.

Armorcord Tire Co. of New England, July 9 (Maine), $200,000. D. O. Campbell, president and treasurer; G. W. Campbell, vice-president; F. Arnold, secretary; R. E. Hall, clerk. Principal office, Sangerville, Maine. To manufacture and deal in rubber tires, tubes, etc.

Atlas Tire Co., August 13 (Delaware), $100,000. H. E. Harper, W. C. Hildebrand, both of Zelienople; C. C. Meeder, Pittsburgh—all of Pennsylvania. Delaware agent, Capital Trust Co. of Delaware, Dover Delaware. To manufacture, buy and sell automobile tires and tire accessories.

Bailey Rubber Heel Co., May 22 (Massachusetts), $75,000. M. Shuman, 1435 Commonwealth avenue, Boston; D. Barkin, 501 Shirley street, Winthrop; R. A. Jordan, 55 Saltonstall Road, Haverhill—all in Massachusetts. Principal office, 52 Chauncey street, Boston, Massachusetts. To manufacture, buy, and sell rubber heels and soles and rubber goods of all kinds.

Bergougnan Rubber Corp., August 1 (Delaware), $1,500,000. R. C. Bergougnan, chairman of the board of directors; H. H. Coleman, president; J. Greuier, vice-president and secretary; W. Clapp, treasurer; M. Leon, general counsel. Principal office, Trenton, New Jersey. To manufacture and sell tires and other rubber products.

Cascade Tire & Rubber Co., The, June 7 (Ohio), $1,000,000. J. W. Mart, president and general manager; F. M. Sharp, secretary and treasurer; M. E. Nichols, M. Fleisher and F. E. Clyde, directors. Principal office, Room 12, Riddle Block No. 1, Ravenna, Ohio. To manufacture cord tires, tubes and pneumatics.

Eureka Tire Co., July 28 (New Jersey), $125,000. D. L. Powers, president, 961 West State street; F. G. Hasselman, vice-president and treasurer, 911 Berkeley avenue; H. P. Messlor, secretary, 332 Mercer street—all of Trenton, New Jersey. Principal office, 26 West State street, Trenton, New Jersey. Agent in charge, M. G. Buchanan. To sell pneumatic tires and inner tubes for automobiles.

Fitrite Garter Co., July 25 (Massachusetts), $25,000. B. Hochberg, 23 Johnston Road, Dorchester; A. I. Karpas, 451 Walnut avenue, Roxbury; S. Raymond, 255 Chestnut street, Chelsea—all of Massachusetts. Principal office, Boston, Massachusetts. To manufacture "Fitrite" garters.

Forster Tire & Rubber Co., The, May 18 (Ohio), $1,000,000. H. Forster, president and treasurer; W. E. Davis, vice-president and general manager; D. W. Davies, manager of sales; M. Schuller, E. F. Crites and W. A. Miller, directors. Principal office, Millersburg, Ohio. To manufacture tires.

Garber Tire & Rubber Co., Inc., August 6 (New York), $30,000. S. and A. Newman, 244 West 54th street, New York City; M. G. Garber, Norristown, Pennsylvania. To manufacture tires and rubber goods.

Hard Rubber Mills, Inc., July 14 (New Jersey), $300,000. A. C. Doig, 159 West 105th street; L. Aldrich, 37 West 103d street, both of New York City; G. Maurer, 516 58th street, Brooklyn, New York. Principal office, foot of Perrine avenue, Trenton, New Jersey. To purchase, sell, deal in and manufacture rubber.

Highland Tire Sales Co., Inc., August 15 (New York), $15,000. J. L. Tobin, 52 Winter street; J. W. Becker, 296 Sumner Place; F. L. Kuhn, 300 Best street—all of Buffalo, New York. Principal office, Buffalo, New York. To manufacture tires and tubes.

Inter-State Tire Corp., June 28 (New Jersey), $125,000. W. E. Gilmore, 119 Prospect street; H. M. Friend, 145 South Arlington avenue, both of East Orange, New Jersey; J. E. Salomon, 1900 Lexington avenue, New York City. Principal office, 16-22 Lawrence street, Newark, New Jersey; agent in charge, H. M. Friend. To buy, sell, manufacture, and deal in automobile tires.

Kelley Tire Co., Inc., August 8 (Delaware), $1,000,000. J. Kelley, 4243 North Darien street; M. J. Brown, 17 South Eighth street; A. Potter, 2336 East Cumberland street—all of Philadelphia, Pennsylvania. Principal office, Suite 475, Drexel Building, Philadelphia, Pennsylvania. To carry on a rubber business.

Liberty Tire & Retread Co., The, June 18 (Tennessee), $20,000. W. M. Selcer, H. S. Wilbeit, H. Goldstein, K. L. McKenzie, L. Goldstein. Principal office, Nashville, Tennessee. To deal in and retread tires.

Lyon Tire Co., January 30 (Illinois), $5,000. P. H. Stewart and others. Principal office, 401 East Monroe street, Springfield, Illinois. To deal in automobile tires.

McGraw Tire & Rubber Export Co., Inc., August 8 (Delaware) authorized capital 1,000 shares without nominal or par value. T. L. Croteau; S. E. Dill; A. M. Hooven—all of Wilmington, Delaware. Delaware agent, Corporation Trust Co. of America, Du Pont Building, Wilmington, Delaware. To manufacture and deal in tires and rubber goods of all kinds.

Madison Tire & Rubber Co., Inc., August 13 (New York), $2,600,000. J. Nelselman, 30 East 42nd street; E. H. Dodge and F. H. Berg, both of 31 Broadway—all of New York City. Principal office, 254 West 57th street, New York City.

Majestic Tire & Rubber Co., The, April 14 (Indiana), $250,000. R. H. Syfers, president; E. B. Oscars, vice-president; O. C. Pantall, secretary and treasurer; J. B. Hilliard, superintendent and production manager. Principal office, Indianapolis, Indiana. To manufacture cord tires and tubes.

Master Tire & Rubber Co., The, August 2 (Ohio), $300,000. W. B. Ruston, president and general manager; G. H. Witsaman, vice-president and factory manager; F. C. Vail, secretary and sales manager; H. G. Egbert, treasurer and credit manager; R. N. Brumbaugh, attorney. Principal office, 506 Schwind Building, Dayton, Ohio. To manufacture cord tires.

Newark Tire & Rubber Corp., The, July 30 (Delaware, $1,000,000. M. L. Rogers, L. A. Irwin, W. G. Singer—all of Wilmington, Delaware. Delaware agent, Delaware Registration Trust Co., 900 Market street, Wilmington, Delaware. To manufacture, buy, sell and deal in all kinds of rubber tires.

Oldham Armor Tire Co., July 25 (Delaware), $1,000,000. F. Giles, M. M. Lucey, L. N. Jennings—all of Wilmington, Delaware. Delaware agent, Colonial Charter Co., 927 Market street, Wilmington, Delaware. To manufacture, repair, vulcanize, and deal in all kinds of tires.

Owen Tire & Rubber Co., February 10 (South Carolina), $25,000. W. C. Owen, president; J. C. Self, vice-president; W. O. Self, secretary and treasurer. Principal office, 714 Flatiron Building, Atlanta, Georgia. To carry on the business of jobbing tires and accessories.

Pike Manufacturing Co., Inc., The, August 6 (Delaware), $100,000. C. B. Bishop, A. M. Fox, A. S. Bishop—all of Wilmington, Delaware. Delaware agent, Delaware Charter Co., 900 Market street, Wilmington, Delaware. To manufacture and deal in hose supporters.

Pioneer Rubber Co., Inc., August 13 (New York), $50,000. R. J. Cronan, 50 Prospect Place; F. X. Brosnan, 146 West 74th street; D. Straus, 60 Wall street—all of New York City.

Pneumatic Rubber Heel Corp., July 21 (Delaware), $1,250,000. R. A. Van Voorhis, 205 Union street, Jersey City, New Jersey; A. R. Oakley, Pearl River; W. E. Schiels, Jr., 51 Division avenue, Brooklyn—both in New York. Delaware agent, Registrar & Transfer Co., 900 Market street, Wilmington, Delaware. To manufacture, purchase, and deal in rubber heels, tires, etc.

Pyramid Tire & Rubber Co., Inc., August 11 (New York), $10,000. J. Jacobs, S. Barnheim, W. Loewenthal—all of 1877 Broadway, New York City. To manufacture tires and tubes for automobiles.

Rebor Rebuilt Tire Co., August 6 (Delaware), $30,000. T. L. Croteau; S. E. Dill; A. M. Hooven—all of Wilmington, Delaware. Delaware agent, Corporation Trust Co. of America, Du Pont Building, Wilmington, Delaware. To manufacture, rebuild, retread, vulcanize, and repair rubber tires and tubes.

Rebuilt Tire Co., Inc., August 5 (New York), $10,000. C. D. Nolen, 475 Fourteenth avenue, Long Island City; E. L. Blessington, 131 Fifteenth street, Brooklyn; E. Gollubier, 407 Westervelt avenue, Staten Island—all of New York. To manufacture tires and tubes.

Roussey-Centlivre Rubber Co., June 23 (Indiana), $100,000. A. J. Roussey, Carl Centlivre, Charles Centlivre—all of Fort Wayne, Indiana. Principal office, Fort Wayne, Indiana. To manufacture, buy and sell tires and tubes.

Rubber Products Finance Co., July 29 (New Jersey), $100,000. S. M. Hollander, S. Kneip, N. M. Fruchtman—all of Newark, New Jersey. Principal office, 790 Broad street, Newark, New Jersey. Agent in charge, S. Kneip. To manufacture and sell tires, tubes and other rubber accessories for automobiles.

Speedway Tire & Rubber Co., The, August 19 (Delaware), $100,000. W. M. Nelson, Wardman Park Hotel; H. L. Clendening, 4037 New Hampshire avenue; W. F. Roche, The Arlington Hotel—all of Washington, D. C. Delaware agent, Delaware Registration & Incorporators' Co., 927 Market street, Wilmington, Delaware. To manufacture, repair, and sell rubber goods of every description.

Squires Tire & Rubber Co., Inc., August 7 (New York), $250,000. C. Henry Squires, president; Coulson H. Squires, secretary, both of Naugatuck, Connecticut; A. C. Squires, treasurer, Richmond Hill, Long Island, New York. Principal office, Room 208, Queens Plaza Court Building, Long Island City, New York. To manufacture high-grade tires and rubber goods.

Tamburello Rim Wheel Co., July 17 (Delaware), $1,000,000. M. L. Horty, M. C. Kelly, S. L. Mackey—all of Wilmington, Delaware. Delaware agent, Delaware Charter Guarantee & Trust Co., Du Pont Building, Wilmington, Delaware. To manufacture automobile rims, wheels and accessories.

United Tire & Rubber Corp., August 7 (Delaware), $500,000. H. H. Nesbit, W. G. Keen, W. F. Saltmarsh—all of Wilmington, Delaware. Delaware agent, G. L. Townsend, Jr., 500 Ford Building, Wilmington, Delaware. To manufacture, buy and sell tires.

Universal Wheel Corp., The, August 14 (Delaware), $1,500,000. J. Hausmann, 210 West 44th street; H. Denton, 220 Audubon avenue; J. Newman, 251 West 89th street—all of New York City. Delaware agent, F. M. Walker, 901 Market street, Wilmington, Delaware. To manufacture and sell the wheel known as "Resilient" and to deal in tires, wheels, and other accessories for automobiles.

Vineland Shoe Co., Inc., May 30 (New Jersey), $20,000. G. D'Ippolito, president; L. D'Ippolito, vice-president; D. Gasper, treasurer and general manager; A. D'Ippolito, secretary. Principal office, Sixth street and Chestnut avenue, Vineland, New Jersey. Agent in charge, G. D'Ippolito. To manufacture rubber soles and heels.

Virginian Rubber Co., The, June 30 (West Virginia), $1,200,000. A. A. Lilly, president; H. G. Young, vice-president; W. D. Guyer, secretary and treasurer; A. J. Sobien, W. A. Abbitt, M. J. Hopkins, J. S. Banister, W. L. Burruss, W. S. Johnson, W. C. Mitchell, V. E. Vining, directors. Principal office, 1110 Union Trust Building, Charleston, West Virginia. To manufacture pneumatic rubber tires and to manufacture dipped goods.

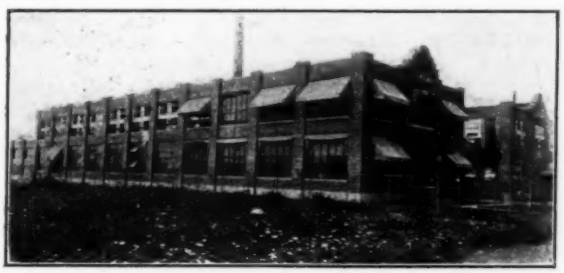
Washington Garter Corp., July 1 (New York), $100,000. M. L. Margolish, M. M. Beskind, both of 627 Broadway; L. Margolish, 1387 Clay avenue—all of New York City. To manufacture garters.

Whickinn Tire & Rubber Co., July 24 (Delaware), $100,000. M. C. Kelly, S. L. Mackey, J. D. Frock—all of Wilmington, Delaware. Delaware agent, Delaware Charter Guarantee & Trust Co., Du Pont Building, Wilmington, Delaware. To manufacture automobile tires.

BERGOUGNAN TIRES IN AMERICA.

French capitalists, owners of Etablissements Bergougnan, with factories in Clermont-Ferrand, France, Moscow, Russia, Turin and Italy have purchased the plant of the Delion Tire & Rubber Co., Trenton, New Jersey, the firm to be known as the Bergougnan Rubber Corporation, of Trenton. The company's office is at 49 West 64th street, New York city.

Plans for additions are rapidly going forward and forty acres of land have been purchased for new factory buildings.



TRENTON PLANT OF THE BERGOUGNAN RUBBER CORP.

The present plant is now turning out about 350 tires a day, and the capacity will be increased to 5,000 daily. Later the company plans to manufacture solid tires also.

The officers of the company are: Herbert H. Coleman, of East Orange, New Jersey, president; W. A. Clapp, East Orange, treasurer, and Jean Grenier, of Trenton, vice-president and general sales manager. The directors of the company, besides the officers, are: John E. Thropp and Peter D. Thropp, of Trenton, and Jules Berthier, L. Larrouze and Raymond Bergeugnan, of Clermont-Ferrand, France.

RETURNS TO THE TIRE BUSINESS.

WILLIAM MACKONE MILNER, for several years connected with rubber trade publications, has resigned the editorship of "The Rubber Age and Tire News," and gone into the manufacture of motor tires.

Mr. Milner was born in Lafayette, Indiana, June 3, 1887, and there received his early education, but removing to Europe in his youth, he attended colleges in England and France. Having a command of several languages, he was first connected with a tourist agency in London, but resigned to become a salesman of automobile specialties, tires and mechanical rubber goods.

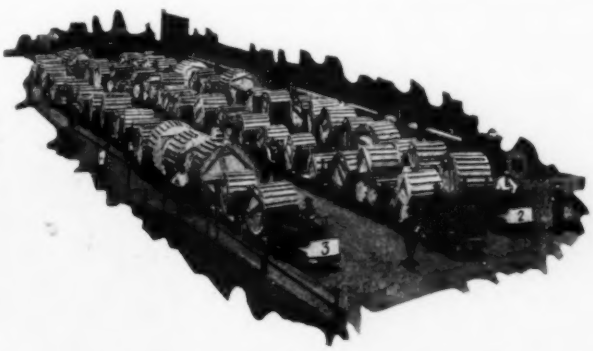
W. M. MILNER.

Returning to this country in 1914, he was for a time connected with the automobile and motor truck industry, and a year or so later he became a member of the editorial staff of THE INDIA RUBBER WORLD. Later, after a short time in the automobile business, he was assisted in establishing "The Rubber Age and Tire News," of which he became the editor.

He now becomes assistant general sales manager of the American branch of the Bergougnan Rubber Corporation, the well-known French tire manufacturing concern, which has acquired the plant of the Delion Tire & Rubber Co., at Trenton, New Jersey. Mr. Milner's duties will be largely the establishing of agencies and branch stores for the Bergougnan tires throughout the United States. His many friends in the trade wish him success in his new position.

A RECORD BELTING ORDER.

The largest single order for belting which has ever been shippped by The B. F. Goodrich Co., Akron, Ohio, was for the



A RECORD SHIPMENT OF GOODRICH BELTING.

Northern Central grain elevators at Canton, near Baltimore, Maryland, owned by the Pennsylvania Railroad Co. The shipment shown here on the traction trains leaving the factory, aggregated 44,594 feet of belting, approximately 8½ miles, and weighed about 131 tons.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS" AND "RUBBER MACHINERY," by Henry C. Pearson, should be in the library of every progressive rubber man.

THE RUBBER TRADE IN OHIO.

By Our Special Correspondent.

AKRON NOTES.

THE B. F. GOODRICH CO., Akron, has appointed F. O. Slutz manager of its railroad sales department, succeeding C. M. Woodruff, resigned. Mr. Slutz has been with the Goodrich company 18 years, the last ten of which has been in the mechanical sales department.

F. O. SLUTZ.

The B. F. Goodrich Co., Akron, has completed the last order for war balloons. During the war its balloon department produced seven balloons a day and employed about 1,300 people. The company also produced 14 dirigibles, 362 observation balloons and 13 supply balloons during the war.

The fourth annual outing of The B. F. Goodrich Co. will be held at Liberty Park, Akron, on Labor Day. The Goodrich band will furnish music and a program is being arranged for athletic events for both men and women, with suitable prizes for the winners.

The B. F. Goodrich Co., Akron, has suspended its Americanization classes for the four weeks ending September 5, the autumn opening being on Monday, September 8. Over 1,500 Goodrich employes have availed themselves of the opportunity to enroll in these classes during the last eight months.

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Employes of The Miller Rubber Co., Akron, held their annual picnic at Summit Beach Park on August 2. Several thousand attended and the program of entertainment included speeches, games and other amusements.

* * *

Harvey S. Firestone, president of the Firestone Tire & Rubber Co., Firestone Park, Akron, spent the first three weeks in August in the Adirondacks with Thomas A. Edison, John Burroughs and Henry Ford, accompanied by his son, H. S. Firestone, Jr.

* * *

C. W. Seiberling, vice-president of The Goodyear Tire & Rubber Co., Akron, has offered a gold and bronze cup, 24 inches high, as a trophy to be presented to the Industrial League team winning the baseball championship of Akron this year.

CLEVELAND NOTES.

L. A. Llewellyn, for the last seven years Ohio salesman for the Republic Rubber Co., Youngstown, Ohio, has been appointed district manager of the Cleveland branch, with offices at 1745 Euclid avenue. The territory served by that branch includes the greater part of the State of Ohio. Mr. Llewellyn is an experienced rubber man, having spent many years in manufacturing previous to his association with the sales department of this company, and is well known in the territory mentioned.

L. A. LLEWELLYN.

* * *

The Cleveland Rubber Corp., Cleveland, has engaged A. H. Harris to take charge of its engineering work and organization of manufacturing. The Osborn Engineering Co. is preparing plans for the buildings and equipment for which contracts will be awarded shortly.

* * *

The Cleveland Osborn Manufacturing Co., Inc., Cleveland, is adding another story to its main building to increase the capacity of its molding machine department. The offices will be located in the new story. An additional story is also being built on the brush factory, to which the brush stock room will be moved.

* * *

The Cleveland Rubber Mold Foundry & Machine Co., 406 Schofield Building, Cleveland, has purchased a plot of land on Warner Road, comprising approximately five acres, where it will build a plant of three units separated by fire walls. The foundry building will be 180 by 110 feet; the light machine shop, 180 by 100 feet; and the main machine shop, 220 by 160 feet, with a mezzanine floor above the side and east end bays.

MISCELLANEOUS OHIO NOTES.

The Mason Tire & Rubber Co., Kent, Ohio, has elected E. G. Tillotson, senior member of the firm of Tillotson & Wolcott of Cleveland, and W. R. Green, secretary of The Guardian Savings & Trust Co., Cleveland, to membership in the board of directors to succeed the late D. N. Mason and fill the vacancy caused by the resignation of M. B. Mason.

* * *

The Rubber Products Co., Barberton, Ohio, has appointed Glen Buck, Chicago, Ill., advertising agent. A campaign on "Stronghold" tires is being launched.

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The Faultless Rubber Co., Ashland, Ohio, is conducting a national advertising campaign on its "Wearever" druggists' sundries.

* * *

The Knox Tire & Rubber Co., Mount Vernon, Ohio, capitalized at $2,000,000, has a 20-acre factory site within one-half mile of the business section of the city and will build there a plant 100 by 225 feet, of concrete, steel, and brick. In addition to the main building there will be a power plant of the same construction. The site has a frontage on the Baltimore & Ohio railroad and the company possesses water rights from the Kokosing river. The officers are: B. E. Frantz, president; E. Scott Cannell, vice-president; F. D. Spencer, secretary and treasurer; C. B. Carpenter, sales manager; and V. V. Hendershot, superintendent. The Chamber of Commerce is backing the concern.

* * *

The Central Rubber Co., Inc., Defiance, Ohio, is now equipped to reclaim all grades of scrap rubber.

* * *

The Master Tire & Rubber Co., Dayton, Ohio, has been incorporated in that state to manufacture the "Master" cord tire. The officers are: William B. Ruston, president and general manager; George H. Witsaman, vice-president and factory manager; Frank C. Vail, secretary and sales manager; Harry G. Egbert, treasurer and credit manager. J. J. Black, formerly mechanical engineer and superintendent of The Dayton Rubber Manufacturing Co., has been engaged as chief engineer and factory superintendent.

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The Owen Tire & Rubber Co., has installed a restaurant and cafeteria for its employes on the roof of its factory at Bedford, Ohio.

* * *

The Forster Tire & Rubber Co., Millersburg, Ohio, has increased its capital from $200,000 to $1,000,000. The officers are: Henry Forster, president and treasurer; W. E. Davis, vice-president and general manager; W. E. Davis, general manager, and M. S. Lower, superintendent.

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The Cascade Tire & Rubber Co., Ravenna, Ohio, which incorporated in June for $10,000, has increased its capital to $1,000,000, under date of July 3, 1919. The officers are: J. W. Mart, president and general manager; F. M. Sharp, secretary and treasurer; M. E. Nichols, Milton Fleisher, and F. E. Clyde, directors. The company will manufacture cord and pneumatic

tires and inner tubes. The first factory unit will be built at an early date.

NORMAN A. SHEPARD, PH. D.

DR. NORMAN A. SHEPARD, who, as was mentioned in THE INDIA RUBBER WORLD last month as succeeding Dr. John B. Tuttle as research chemist at the Firestone Tire & Rubber Co.'s plant at Akron, Ohio, although a young man, is well known in the scientific world.

NORMAN A. SHEPARD.

He was born April 8, 1890, in New Haven, Connecticut, where he attended school, graduating from the high school in 1907 as valedictorian of his class. He then enrolled in the chemical course of the Sheffield Scientific School of Yale University, from which he graduated, with the degree of Ph. B., in 1910. He continued his study in the Graduate School of Yale for three years, majoring in organic chemistry under Professor Treat B. Johnson, who is recognized as an investigator of marked ability in this subject. He was a member of the Yale faculty from 1910 to 1919, first as laboratory assistant and successively as assistant in instruction, instructor, and assistant professor, which office he resigned last July to accept his present position.

Dr. Shepard received his degree of Ph.D. in 1913, and three years previous to this he was elected a member of Sigma Xi, a national honorary organization of men and women interested in original scientific research.

Dr. Shepard has contributed several able articles to the "Journal of the American Chemical Society." During the recent war he was instructor in the Student Army Training Corps, and was detailed on research work on high explosives in connection with the government plant at Bound Brook, New Jersey. He is considered a worthy successor to Dr. Tuttle, who becomes chief chemist of the Firestone company.

MASON TIRE & RUBBER CO. EXPANDS.

Following the detailed announcement of the building of a mill to supply tire fabric, that appeared in THE INDIA RUBBER WORLD, April 1, 1919, comes the report that The Mason Tire & Rubber Co., Kent, Ohio, will double the capacity of its plant, contracts having been placed for two large additions. This, it is claimed, will place this company fifth in point of production among the tire manufacturers in the Akron district. This is the third time the capacity of the plant has been doubled in the last three years.

The establishment of the cotton fabrics mill, and the enlargement of the tire factory will require 500 additional employes, and to provide proper living conditions for them, The Mason Housing Co. was incorporated July 16, 1919, under the laws of Ohio, with a capital of $100,000, to assist and encourage employes to own their own homes. The directors and officers of the company are the same as those of The Mason Tire & Rubber Co.

Two recent additions to the production list of the company are 40 by 8 pneumatic cord truck tires and 30 by 3½ cord tires.

EXPANSION IN GOODRICH PLANT OBLITERATES RUBBER BUILDINGS ERECTED 35 YEARS AGO.

The accompanying illustration shows leveling crews engaged in razing one of the Akron rubber industry's oldest lands marks. The buildings in this group were the home of the American Hard Rubber Co., for a number of years and were originally constructed by the Goodrich company about the year 1884. It was in these buildings that the Goodrich company first manufactured hard rubber products. Four years later the Goodrich Hard Rubber Co. was formed, the land, buildings and stock of the hard rubber department being transferred to the new company.

In 1898 the American Hard Rubber Co., a combination of several small companies, was organized, taking over the holdings of the Goodrich Hard Rubber Co. This new company retained possession of the buildings until last year, when they removed to their new quarters in East Akron.

A mammoth eight-story-and-basement building costing $1,500,000 will replace all of the buildings in this group. In fact

REMOVING OLD GOODRICH LANDMARK.

from the standpoint of floor space it will be the largest building in Akron. The construction and equipment will be of the most modern type.

THE RUBBER TRADE IN MASSACHUSETTS.

By Our Regular Correspondent.

THE UNUSUAL MIDSUMMER QUIET of past years has not been so marked this season in the rubber trade here, though, to be sure, the footwear factories have been shut down for two or three weeks. Considerable new machinery has been installed, and more would have been added, but manufacturers of rubber-working machinery and appliances are sold up to capacity several months ahead. The tire business is naturally very brisk at this season, all manufacturers reporting good business, while many new enterprises in this field have started or are contemplated. Clothing people have had some labor troubles, but apparently these have been straightened out. Mechanical plants are busy. The reclaiming business is the one which is feeling the greatest absence of activity, due to the low price of crude rubber. Manufacturers prefer to use new rubber rather than reclaim at present rates, and the demand for the latter is little if any over 50 per cent of normal. This condition is reflected in the dullness of the waste rubber market, and dealers are carrying much larger than average stocks, with little demand for any scrap except inner tubes and boots and shoes.

* * *

September 1 is the usual date when the manufacturers of rubber footwear announce their prices for tennis shoes for the succeeding season. Higher prices are anticipated, and naturally so when the rise in values in all lines of merchandise is considered. Crude rubber, to be sure, has declined over 30 per cent, but the rubber cost in tennis footwear is but a small proportion of the total. With all other materials costing much more, and labor costs soaring, there is every reason to believe that the

new price lists will show material advances over last year's rates.

* * *

The Boston Woven Hose & Rubber Co. reports a remarkable call for jar-rings. Even though the normal wholesale season is over, the retail demand, now at its height, is being reflected by the reorders from wholesale distributers.

This company is building for completion and occupancy about October 1 a one-story brick and steel building, 165 by 50 feet, to be used for the manufacture of imitation leather. Considerable new equipment will be installed to double the present output. In addition to motor fabrics, material is being produced for baby-carriage manufacturers, handled in conjunction with the company's tire business; also imitation leathers for the shoe trade to which the company furnishes heels and soles.

* * *

George and Samuel Grow have formed the George Grow Tire Co. and purchased and equipped the plant of the C. C. C. Fire Hose Co. at Canton, Massachusetts. The manufacture of cord and fabric tires has been started with an output of 75 tires per day, which they expect to increase to 500 tires by next spring. The cord tires are all hand made, and machines are used in producing the fabric tires, all of the latter being oversize and containing one ply more of fabric than the standard.

George Grow will have charge of sales. The factory superintendent is L. J. McDonald, for twelve years with the Revere Rubber Co. and the Patterson Rubber Co., and for nearly five years with the Needham Tire Co., the last year as superintendent of the latter company's factory.

* * *

The Vaughn-Upton Co., manufacturer of fountain pens and hard-rubber pencil holders for the stationery trade, recently removed its plant from Causeway street to North Washington street, Boston. The present plant occupies the entire top floor of the Trade Building, is excellently lighted on three sides, and is laid out to facilitate manufacturing operations to the best advantage.

* * *

Seaver & Co., 120 Milk street, Boston, manufacturers of fine ivory and bone black, will be located at 3 Tremont Row, in the Olympia Building, after September 1, 1919.

* * *

The First National Bank, Boston, has purchased the Equitable Building on Milk street and the properties immediately adjoining at the rear, the total having an assessed valuation of almost $2,000,000. The present buildings on the site will be torn down and a new one erected which will be one of the finest banking houses in the country.

* * *

Last month there was an auction sale in Boston of 43,000 pairs of hip rubber boots salvaged from the steamship *Port Hunter*, which was sunk off Long Island more than a year ago. The goods were owned by the Government, and despite the fact that they had lain for several months under water they were found in surprisingly good condition. The boots were offered in 500-pair lots, well sorted as to sizes, and no bidder was allowed to buy more than four lots. The lowest price at which they were sold was $2.45 per pair, and the highest $2.51. As the trade price of hip boots runs from $4.50 to $4.75, and these were specially heavy and sold to the Government at a much higher figure, the buyers must have considered them bargains.

* * *

Business at the Boston establishment of The B. F. Goodrich Rubber Co., of Akron, Ohio, was suspended on August 7, when the entire force participated in an outing at Nantasket Beach. The company assembled at the Goodrich Building, on Boylston street, and, headed by a band, marched to Rowe's Wharf. Arriving at the beach, a program of sports was offered by the general committee, of which F. T. Moore, New England manager of the company, was chairman. Afterwards there was dancing in the hotel ballroom, visits to Paragon Park and other forms of entertainment.

One of the most interesting events was the fat men's race, which was won by Manager Moore, with W. H. Hickey second. There were no entrants in the fat girls' race, but a number responded when candidates were called out for "pleasingly plump girls." Miss T. G. Ribbs won first prize. There were three-legged races, pie-eating contest for the office boys, various dashes for men and girls and other events. The party returned to Boston on an evening boat.

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Herbert T. Mason, recently with The Goodyear Tire & Rubber Co., Akron, Ohio, is now treasurer and sales manager of the Quabaug Rubber Co., North Brookfield, Massachusetts.

* * *

The Tyer Rubber Co., Andover, Massachusetts, is planning an extension of its welfare work and service to employes. This began by the employment in June of Mrs. E. A. Webster Cross, an American nurse, who had served for about three years with the British Army in England and France, and who for a considerable part of that time was engaged in the industrial service of the British Government for munition workers. During the first month Mrs. Cross has treated about 150 cases, and while the injuries were not in many cases of a serious nature, it is estimated that much real trouble has been avoided by prompt treatment, so that time has been saved both to the individual employe and to the company. Excellent hospital rooms are being fitted up in two of the buildings of the company.

In July an employment and service department was established under the direction of Ralph E. Nash, who has had several years experience in industrial service work overseas. He undertakes the work with no fixed plan, both he and the company feeling that whether or not his work follows the approved and accepted methods of this country or the more recent liberal English methods, depends quite as much upon the employe as upon the company. The introduction of such a department indicates the attitude of the company towards cooperation with its employes, to which it feels a hearty response will be accorded.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THE MONTH OF AUGUST has in a great measure been a reconstructive one for the manufacturers of rubber goods in Rhode Island, as it has been the first period in nearly four years when there has been so near a complete cessation of production. In consequence of the long period of continuous operation, an unusual amount of overhauling and repairing of the machinery and other equipment of the several plants has been necessary to bring them back to the normal standard. Renovations, rearrangements, extensions and the erection of several additions have been among the activities noted at the various concerns.

The help situation continues to harass the manufacturers, with but little hope of any immediate relief. The abnormal wages paid to laborers during the war by industries that were engaged on governmental contracts attracted hundreds of employes, and few have returned to their regular vocations. It is safe to say that the manufacturers of rubber goods in this city and vicinity could immediately place at least 1,000 employes in their various departments.

* * *

The plant of the National India Rubber Co. at Bristol, which closed down July 31 for two weeks, did not resume operations at the date expected, but was idle for an additional week because of the tie-ups occasioned by the strike on the railroad system. It was not until the 25th that the first of the departments started up, and a week later before all departments were in operation.

During the shut-down the gum-room building in the central part of the factory was raised from two stories to three in

height, thus materially increasing the capacity of the department. General work was done in practically every part of the plant and the factory put in exceptionally good condition.

The National India Rubber Co. has ordered a bronze honor roll tablet to be placed in front of its plant at Bristol, listing the names of those who were in its employ at the time they entered the service of the United States during the World War. The list is in the hands of Andrew W. Anthony, Industrial Relations Manager, who has 237 names on the roll, three of whom are in the list of deaths. When completed, the tablet is to be unveiled and dedicated with appropriate exercises.

The maintenance department of the National India Rubber Co. enjoyed its annual outing and clam-bake on the afternoon of August 10 on the shores of Narragansett Bay at Bristol. Games were played, including baseball.

Laurence S. Greenwell, in charge of the Planning Department of the National India Rubber Co., and Robert Ford, of the same department, during their two weeks' vacation hiked through southern Rhode Island and eastern Connecticut, camping in the woods or fields, using specially adapted sleeping bags.

* * *

During their vacation in August, Joseph A. Kennedy, superintendent of the Tubular Woven Fabric Co., of Pawtucket, and J. O. Lindsley, assistant superintendent, captured on a mackerel hook a shark weighing between 500 and 600 pounds. The shark put up an exciting fight and it was nearly two hours before he was landed at the side of the boat.

* * *

The first annual outing of the Foremen's Council of the Woonsocket Rubber Co., which comprises the Alice Mill at Woonsocket and the Millville plant and the Lawrence felt mill, was held Saturday afternoon, August 16, at the Warwick Club on Narragansett Bay. About 130 foremen and guests were present and enjoyed the luncheon and clam-bake. A program of track events and a baseball game among the members was much enjoyed. The party went to Warwick in two special cars. Among the invited guests were Myron H. Clark, Arthur Reeves, Henry C. Wagner, George Schlosser, William H. Schlosser, Waldo E. Kelly, Thomas F. Rogers, B. J. McLaughlin, Eugene Reilly, William T. Aldrich, Herman Fahrenholz, Walter R. Williams, William Kehlthau, Clarence H. Guild, Arthur A. Spencer, Michael J. Bowes and Otto Koerner.

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The sale of the Globe Yarn Mills at Fall River, which was announced early in the month, was of more than ordinary interest in textile and rubber circles in this State. The purchaser was the Connecticut Mills Co., of Danielson, Connecticut. This property is the last of the cotton yarn manufacturing plants formerly owned and operated by the New England Cotton Yarn Co., which continued until the present time to hold the controlling interests. The revenue tax stamps attached to the deed of sale indicate that the purchasing price for the property was about $760,000.

The Globe Yarn Co. is capitalized at $1,000,000, of which $500,000 is 7 per cent accumulated preferred stock and $500,000 common stock, and operates 54,000 spindles, producing hosiery yarns and thread. Extensive changes in equipment will be necessary, as the new corporation plans to make yarns for tire fabrics.

* * *

Saturday, August 2, about 500 employes of the Goodyear Cotton Co., of Danielson, Connecticut, held their annual outing at Crescent Park on the east shore of Narragansett Bay. They were conveyed in automobiles and motor trucks and were accompanied by the company's band.

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Over 1,200 lads and lassies from the Revere Rubber Co.'s plant, Valley street, Providence, attended the fourth annual outing on Saturday, July 26, at Lake Pearl, near Wrentham, Massachusetts. The party left the Union Station at 8:45 in the morning in two special trains, arriving at Lake Pearl soon after 10 o'clock. A fine dinner, bathing, boating, dancing, and field sports were features of the program. The success of the outing was due entirely to the employes of the firm, headed by an executive committee, of which Miss Odeal Okell was chairman and D. K. MacDonald, secretary, assisted by A. W. Waite, O. H. Carr, F. D. Mills and A. N. Smith.

* * *

The Bourn Rubber Co., Warren street, Providence, is running steadily on large contracts for rubber shoes, with encouraging prospects for an indefinite period, although hampered by the handicap of a scarcity of help. Superintendent F. W. Foote has found it exceedingly difficult to obtain female help, notwithstanding repeated offers of better wages than ever before offered for similar work.

* * *

The new refrigerator building that was recently erected on the ground of the O'Bannon Corp., at the former plant of the International Rubber Co., at West Barrington, has been completed and placed in operation. The company reports an increasing demand for the rubberized goods that it is producing for use in automobile and carriage tops.

* * *

Samuel Fish and Nathan Siegalman have purchased the Supreme Tire & Vulcanizing Co., at 318 Smith street, Providence, heretofore conducted by William and Isador Cohen.

* * *

Ellery Merritt, chief electrician, and William Wood, assistant electrician, of the Millville Mill of the Woonsocket Rubber Co., have been spending a month's vacation at the Panther House, Moosehead Lake, Maine.

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The What Cheer Tire Co., 3 Claverick street, Providence, is owned by Frederick A. Gautmer and George Cetenich, according to their statement filed with the City Clerk's office.

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The Narragansett Tire Co., 146 Bellevue avenue, Newport, is being operated by the Fulton Tire Supply Co., of Boston, with Israel Smith as resident manager.

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Hyman Abrams and Harry Gordon are conducting the Arc Vulcanizing Co., 385 Canal street, Providence.

* * *

The local branch of the Firestone Tire & Rubber Co. is now at 18 Snow street, Providence. H. J. Aitken is manager.

THE RUBBER TRADE IN NEW JERSEY.

By Our Regular Correspondent.

THE THERMOID RUBBER CO. has purchased a tract of land, 375 by 946 feet, along the Pennsylvania railroad as a site for a new factory to cost about $300,000, and which will give employment to 600 workers. William J. B. Stokes, president of the Thermoid company, says that the concern now has engineers at work on preliminary plans for the proposed structure and that it is the desire to have the construction begun early in the fall. The new plant will be of steel and concrete and equipped with tire machinery of the latest type.

* * *

The employes of the Ajax Rubber Co., Inc., Trenton, with their families, held an outing at Springdale Park recently. Carl Dibbel, night superintendent of the Ajax plant, was chairman of the committee in charge.

* * *

The Fineburg Auto Tire & Accessory Co., Trenton, has purchased the carriage factory of Lewis W. Reeder on South Warren street, where solid-tire presses have been installed. Day and night service will now be given. Several thousand dollars'

worth of additional machinery will be installed at the plant and Mr. Reeder will be manager.

* * *

The Hamilton Rubber Manufacturing Co., Trenton, has added a three-story extension to its plant, which will provide about 12,000 additional square feet of floor space. The company has just installed a complete department for the manufacture of high-grade molded garden hose.

* * *

The Puritan Rubber Co., successor to the Panther Rubber Co., Trenton, has filed articles of incorporation in the office of the Secretary of State. The new company will occupy the Panther plant on Perrine avenue, and manufacture rubber heels, soles, and similar articles. Associated with the new company are, Frank Bernstein, William Bernstein, Miah Marcus and Tobias Gordon, who is the Trenton agent of the new firm. The Puritan company is capitalized at $250,000, of which $80,000 is paid in.

* * *

Trenton rubber manufacturers find enjoyment in different diversions during the summer months. John A. Lambert plays golf at the Trenton Country Club; Howard C. Whitehead cruises in his yacht; John S. Broughton takes frequent trips to the seashore resorts; Horace B. Tobin enjoys fishing at Forked River; Charles H. Semple is now on an extended motor trip through the New England states; Robert J. Stokes spends the summer months with his family in the Pocono Mountains; A. Boyd Cornell motors when he is not playing golf at the Trenton Country Club; Clifford H. Oakley is also a devotee to golf; Bruce Bedford spends a few weeks each summer with his family at Wilkes-Barre, Pennsylvania, and William J. B. Stokes enjoys motoring and golf.

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The Brighton Mills, Passiac, New Jersey, manufacturer of cotton fabrics, has let contracts for Unit No. 2 at its Allwood plant, to be a duplicate of Unit No. 1 with the exception that the equipment will include particularly machinery for increasing the output of cord tire fabric. It is expected that the new plant will be in operation by January 1, 1920.

* * *

The Overland Tire Co., Newark, New Jersey, has purchased a plot on Cortland street and will erect a one-story plant covering about 35,000 square feet at a cost of about $100,000. The plant will be used for making new tires and rebuilding used ones. John D. Olwell is president and James A. Whitman secretary and treasurer of the company.

OVERLAND RUBBER CO. BECOMES STANWOOD RUBBER CO.

The Overland Rubber Co., Newark, New Jersey, which, by the way, is not a subsidiary of the Willys-Knight interests, has reincorporated as the Stanwood Rubber Co., with an authorized capital stock of $3,000,000 preferred and 500,000 shares of common stock without par value. The change of name has been made in order to avoid confusion with other companies including the name "Overland" in their corporate titles, with none of which it has any connection. The Stanwood Rubber Co. has purchased the plant of the Militor Corp., at Newark, New Jersey, in which it is installing equipment for the manufacture of "Stanwood" tires and tubes at an early date. Orders for machinery and equipment are being placed, including that for the power-house. The officers of the company are Charles E. Barker, president; Edward Hutchens, vice-president and engineer; R. B. Gillette, secretary and treasurer; S. P. Woodard, chairman board of directors.

PACIFIC COAST NOTES.

ELMAR S. FIRESTONE, manager of the Los Angeles branch of the Firestone Tire & Rubber Co., has been in Akron attending a conference of the factory branch managers.

F. P. Harrington, manager of the accessory department of the Miller Rubber Co., Akron, Ohio, on his recent coast trip appointed the International Sales Co. of Los Angeles, distributors of the Miller Ad-on-a-Tire in Los Angeles and the southern part of the state.

* * *

The Ehman Tire & Rubber Co. of California has opened offices at 742 South Olive street, Los Angeles, for the distribution of Ehman fabric tires. The local representatives are E. F. Riley, H. S. Turner and C. P. Turner. Mr. Riley was at one time in the tire business in Pasadena while Mr. Turner is a Los Angeles pioneer in the tire business.

* * *

The B. F. Goodrich Rubber Co. in its campaign to increase the interest in touring in California has this year distributed approximately 250,000 route maps through the state. The peak of travel was reached during August when motorists from all over the United States applied to its various bureaus for information. A large number of tourists made the trip to the East by way of the Midland or Arrowhead trails to Salt Lake City, thence along the Lincoln highway, while others took the route via the Santa Fe Trail, taking in the scenic spots, such as the Grand Canyon of the Colorado and the Rocky Mountain resorts.

* * *

The Rubber Products Co., Barberton, Ohio, manufacturers of Stronghold tires and tubes, has entered the Southern California field. The company plans to limit dealers' territory in order to provide more secure protection of their trade. The B. & B. Tire & Supply Co. on South Main street has been appointed Los Angeles representative. At the head of the Pacific Coast organization of the Rubber Products Co. is Edward Slosson, formerly with the Firestone Tire & Rubber Co.'s motorcycle tire department. He will make his headquarters in San Francisco, leaving B. W. Cunningham in charge in Los Angeles.

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Edwin M. Fowler & Co., Los Angeles, cotton dealers, are projecting a tire fabric plant which will be equipped to utilize its own waste.

* * *

The San Francisco branch of the Mohawk Rubber Co., Akron, Ohio, has practically doubled its facilities to take care of increased business. W. G. Fitzgerald, formerly Kentucky representative of the company, is in charge.

* * *

M. B. Rapp, San Francisco, has left for Akron, Ohio, to put the finishing touches to his education as a tire salesman for the Granfield-Baston Tire & Supply Co., distributors for Diamond cords and fabrics and Goodrich solid tires. He is well known as a hand-ball player and all around athlete.

* * *

P. H. Lyon of San Francisco, secretary of the Chanslor Lyons Co., distributor for Lee tires, has just returned from a trip to the Lee factories at Conshohocton, Pennsylvania.

* * *

The energy with which the Firestone Tire & Rubber Co. is pushing its "ship-by-truck" movement is attested by the thousands of celluloid buttons, papers of matches and watch fobs on which is shown a large truck wheel, across the face of which are the words in script "Ship-by-Trucks." The recent parade held in Oakland was a huge success.

* * *

Munnell-Sherrill Co., 40 First street, Portland, Oregon, a tire jobbing house, has been appointed a distributer of Mohawk tires and will carry a large enough stock to facilitate prompt shipments in the Northwest.

The Oregon Tire Co., 61 First street, Portland, Oregon, has been assigned the Portland territory for McGraw tires.

* * *

The Deaton Tire Co. of Seattle has been appointed agent for the distribution of the Oldfield Tires for Kings County and has opened a salesroom at 1211 Pine street.

* * *

The Rubber Service Co., 1023 East Pike street, Seattle, Washington, has been appointed distributer for the Mohawk tire and will carry a large stock of casings and tubes.

* * *

The Jensen-King-Byrd Co., 320 Riverside avenue, Spokane, Washington, has been appointed distributer of Mohawk tires in its territory and will carry a complete stock.

* * *

Pacific Coast representatives in Congress have been especially active in promoting the National Highways movement and many of the two score bills before that body have been sponsored by the statesmen from the Western slope. It is interesting to note in analyzing the proposed road measures that the demand comes from all sections of the United States, showing that the movement for national highways is a genuine growth and that the road question has passed beyond the sectional stage.

NEW ERA FOR INDUSTRY IN SOUTHERN CALIFORNIA.

WHEN FRANK A. SEIBERLING, president of The Goodyear Tire & Rubber Co., drove the first pick into the ground on the site of the great rubber plant to be erected in Los Angeles, he gave an impetus to a project which is a result of the free industrial policy of that city. Whether other eastern manufacturers will follow in his footsteps and take advantage of the

BREAKING GROUND FOR THE GOODYEAR DEVELOPMENT AT LOS ANGELES.

opportunities that Los Angeles offers for growth untrammelled by the interference of labor agitators, remains to be seen.

"We chose Los Angeles," said Mr. Seiberling, "because we thought that here was not only an adequate supply of labor, but an adequate supply of free labor capable of being trained into the skillful occupations that are required in our industry. That was one of the controlling factors in our decision."

Summarizing the reasons for building a Goodyear plant on the Pacific Coast, and for selecting Los Angeles as the site, Mr. Seiberling continued:

"We are handling, from Akron, business on this coast approximating $13,000,000 annually. The raw materials from which it is made are crude rubber and cotton, the two main factors. The rubber comes from the Far East to these western shores, is transported by cars to Akron, manufactured into product, and shipped back to the coast. The cotton grown in the Salt river valley is caried in cars to Goodyear, Connecticut, and from there to the plant at Akron where it is manufactured into product and shipped back to the Pacific Coast. In other words, the two main factors loop across the United States, in railroad transportation, making an unnecessary and wasteful cost. That is sufficient justification to bring us to the coast.

"By a process of elimination we got down finally to Los Angeles. The main factors in a rubber factory are cheap fuel, an abundance of water and cheap power. You must have transportation facilities for gathering raw materials and for distributing your product. All these factors should be as nearly ideal as you can get them.

"When we came to survey the coast we found that Los Angeles had the cheapest power on the Pacific Coast where used in large quantities and that Los Angeles had the only supply of fresh water sufficient for our needs."

Regarding the advantages of the company's plan in establishing a system of homes for working men in connection with the new plant, Mr. Seiberling said:

"Our workingmen have all the comforts that I have in my home without the frills and the burdens. A workman working in our factory receives wages as high as are paid in the art anywhere. What more can he ask for?

"What has that done for us? It has established conditions in the factory and given us a body of men that have an interest in our business, that have their future in it; and they are not thinking of Bolshevism, I. W. W.-ism, or the other isms.

"The policy of getting workmen, heads of families, men of character, to buy the homes that we build, will be continued in Los Angeles. We shall assist them in every degree in our power to have them acquire homes that will be sold on long payments and easy terms. As the result we believe that we will obtain the same conditions in Los Angeles as we have in Akron."

President Seiberling predicts the greatest future development for Imperial valley cotton.

"This year, California and Arizona will produce 150,000 bales of the best cotton produced. Less than 5,000 bales is made up here on the Pacific Coast. When the Goodyear cotton mill is running its 33,000 spindles in Los Angeles you will then be making but one three-hundredths of the cotton used in this country. You have one-twentieth of the population living and consuming cotton products on the Pacific slope, that is using the cotton of 1,500,000 spindles. So, you see the opportunity you have for developing cotton mills to manufacture the cotton which is grown here, instead of shipping it East and then sending it back in manufactured form."

The plans of the Goodyear plant have so far developed that it has now been decided to produce 7,500 instead of 3,000 tires daily. The cotton mills will have 33,000 spindles instead of 22,000. A giant aeronautic plant will also be built as part of the Goodyear establishment.

The ceremony of the ground breaking brought a large number of Goodyear officials and prominent citizens of Los Angeles to the site at Ascot Park. In the party which assembled, including Mr. Seiberling, were Paul W. Litchfield, F. L. Landon, C. Slusser, D. J. Koonce, William Hunkin, George Bellis, Henry K. O'Melveny, W. H. Daum, George C. Griffin, W. A. Quine, M. E. Morris, R. G. Kreitler and John Breen.

MOTOR AND ACCESSORY MANUFACTURERS' ASSOCIATION MEETING.

The Motor and Accessory Manufacturers' Association will hold a convention September 11 and 12 at the Hotel Lafayette, Buffalo, New York. Although this will be primarily a credit convention, subjects of importance to the entire automotive industry will be discussed.

The Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE SHORTER WEEK AND PRODUCTION.

AT THE ANNUAL MEETING of the National Joint Industrial Council for the Rubber Trade, held in Manchester on July 9, 1919, Mr. J. T. Goudie was reelected chairman on the suggestion of the operatives, notwithstanding the fact that, according to the constitution, it was the right of the latter to elect a new chairman. The operatives said they were grateful to Mr. Goudie for his constant courtesy and for the impartial way in which he had administered the business of the council. It will be interesting to see if this action of the rubber workers is copied in any other of the various industrial councils. The most important feature of Mr. Goudie's address was in reference to the 47-hour week. He assured the operatives that the employers are in no way opposed to shorter hours and higher wages, but he emphasized the vital necessity for a full production. The fullest possible output is necessary in order to cope with the competition which, keen at present, is likely to become even more severe in the near future. He made the suggestion that both sides should appoint special subcommittees to consider this matter. This is a really important subject and it is agitating the minds of employers in most branches of industry. It is no good thinking the fact that the shorter working week means a decreased output, a more unfortunate state of affairs when order books are well filled. Nor do I think that a remedy will be easily found by appeals to the operatives. The British workman will not readily change his acquired habit of turning out so much work in a given time. The policy of hustle, which I believe is not unknown in America, does not appeal to him, and I am afraid that the economic interests of the country generally do not come up for much consideration. From what employers in the Rubber Trade tell me, I gather that they are not at all hopeful of increasing output except in the way of doing by machinery what has hitherto been done largely by hand, and it would mean that there is plenty of scope for the exercise of ingenuity in bringing about the transition from hand to machine work in departments of the industry in which manual labor has hitherto ruled supreme.

Although the trade generally has plenty of business on hand, both for home and foreign account, we seem to be continually held up by labor troubles of one sort or another.

THE COAL SITUATION.

At the time of writing the coal strike in Yorkshire has caused many textile concerns to shut down. The temporary closing of the works of the Bradford Dyers' Association has caused a stoppage of the delivery of certain classes of textiles urgently wanted by the Manchester proofing works. Then there is the 6*s.* per ton addition to the cost of coal, which the rubber manufacturers say will have to be passed on to the purchaser of goods. With regard to this item of cost in manufactures generally, it will probably turn out that it will be made the occasion, or the excuse, for a larger addition to the price of finished goods than is necessary or warranted.

There must be borne in mind not only the additional cost of the coal used as such, but also the higher price of electric power now so largely used in rubber works. Further, the increased metallurgists' and engineers' cost will be duly passed on to the buyers of machinery, which will now cost more.

It is quite possible that the increase in manufacturing costs may improve the rate of organic accelerators, as the point of the largest output in a given time will be of greater importance. Otherwise, the high price of the accelerators, which cost from two to three shillings per pound, as against so many pence for sulphur, has been against their more extended use.

PATENTS AND DESIGNS BILL.

One of the principal objects of the new Patents and Designs Bill now being considered, is to prevent foreign patents received in this country being exploited mainly in the interests of the country of their origin.

PROOFING CASE SETTLED.

The action listed at the Manchester July Assizes, Quas-Cohen v. Ferguson, Shiers & Co., was settled on terms after being brought into court. The plaintiffs, Quas-Cohen & Wilks, waterproof garment manufacturers of Cheetham, Manchester, and Ferguson, Shiers & Co., of Failsworth, Manchester, rubber proofers, for breach of contract and damage caused to certain cloth by defective proofing. The case was concerned with a contract which the plaintiff obtained in 1917 for the supply of 100,000 military ground sheets, the manufacture of some of which was arranged with the defendants. Of the goods proofed by the defendants, however, 4,000 were rejected in expert examination as not being properly vulcanized and they remained on this plaintiff's hands as practically useless. Shortly after the case was opened an agreement was come to whereby judgment was entered for the plaintiff for £1,375, the rejected goods to remain in the plaintiff's possession.

It may, perhaps, be mentioned that the defendants are a distinct firm from A. O. Ferguson & Co., Limited, which carries on a similar business in the same neighborhood.

INQUESTS ON FIRES.

Under the City of London Fire Inquest Act of 1868, it is compulsory to hold coroner's inquests into the cause of factory fires, although outside London no enquiries are held unless fatalities have been recorded. In view of several large fires which have recently occurred in the north of England, it has been suggested that the London system might be extended with advantage to the country, or that, at any rate, the American system of having a fire marshal in manufacturing towns. The general rule in our towns is to state that the cause of the fire is unknown and it is rarely that any officials desire a proper investigation into the circumstances. In the earlier days of the war several fires occurred in our rubber works, but there is nothing on record by which the experience gained could be utilized by others as a help to preventive measures. The common remark that the fire was caused by defective insulation is resented by cable makers, and spontaneous combustion is frequently adduced to cover carelessness. It is, I believe, generally accepted that fires in proofing works are more common with petroleum spirit than with coal tar naphtha, but I doubt if it is generally recognized that the cause is due to the greater facility with which the former solvent becomes electrically charged and capable of ignition by a spark caused by friction. With regard to the general question of the loss caused by fires, it is not enough nowadays to assert that the loss is covered by insurance. There is the present difficulty of replacing damaged machinery, to say nothing of the higher price which has to be paid. All things considered, then, it would seem that fire inquests should be far more general, and the valuable information which would be obtained could be summarized in handy form for the guidance of others engaged in similar industries.

NEW CORPORATIONS.

Mr. Alfred Smith, of Excelsior Works, Clayton, Manchester, manufacturers of rubber substitute, reclaimed rubber and

rubber chemicals, has converted his business into a private limited company, the directorate consisting of himself and his two sons. The capital is £80,000. The firm has considerably enlarged its business in recent years and has established agencies in a number of foreign countries, the New York City address being 98 Maiden Lane.

The United Kingdom Dental Manufacturing Co., Limited, has been registered with a capital of £200,000,000, the registered office being at 167 Oxford street, London. This is an American concern, the directors including W. L. Smith, of Pittsburgh, and T. G. McCann, of Philadelphia. Although we have in England the well-known firm of Claudius Ash, Sons & Co., Ltd, dental supplies, a large amount of dental rubber has always come in the past from America, and no doubt the present and prospective trade restrictions have been instrumental in the formation of this new company. We have also imported a good deal of dental rubber from Germany, and when this was cut off during the war, there was an outcry against the high price charged by British firms for goods of the same character.

The Enfield Ediswan Cable Works, Limited, capitalized at £200,000, has been formed to take over the business and assets of the Enfield Electric Cable Manufacturing Co., Limited, which, it turns out, was the purchaser of Connolly Brothers' cable works at Blackley, Manchester. The sale of this latter concern by auction was recently referred to in this correspondence. The new company's works are at Brimsdow, near London, and considerable extensions are in progress. The chairman of the new company is Viscount Grimston, son of the Earl of Verulam, and head of the St. Albans Rubber Co., which makes the Grimston tire. Other members of the board are C. J. Ford and E. E. Hunter, the chairman and managing director of the Edison Swan Electric Co., Limited, this company taking up 50,000 shares.

MISCELLANEOUS FOREIGN NOTES.

LONDON RUBBER AND TROPICAL PRODUCTS EXHIBITION AND CONGRESS.

A RUBBER AND TROPICAL PRODUCTS exhibition and congress will be held in London next year. The time set is June 3 to June 17, and the place will be the Royal Agricultural Hall, where previous exhibitions have been held. The manager will be Mr. H. Greville Montgomery; he will be assisted by Miss D. Fulton and Miss Edith A. Browne. The offices are at present at 43 Essex street, Strand, W. C.

NEW FINNISH RUBBER AND LEATHER FACTORY.

A new Finnish firm will be established for the manufacture of rubber and leather goods at Helsingfors, Finland, to be known as the O. Y. Finska Trëugolnik A. B., with an initial capital of $965,000. This concern is closely connected with the Trëugolnik of Petrograd. Franz Ulthemann is managing director.

LANCASHIRE FACTORIES BUSY.

Business in rubber fabrics is very brisk in the Lancashire factories, and the garment makers are keeping busy. It is believed that the French Government will remove duties on rain cloth, which will help the French rubber trade at the expense of the English. Cloth for motor hoods is in great demand; it is needed for the imported American cars, many of which have English bodies fitted to them.

MARSEILLES CRUDE RUBBER IMPORTS RESTRICTED.

France will give shipping preference to rubber grown in French possessions or elsewhere by companies organized with French capital and under French law. The quantity of rubber to be imported in the year beginning October, 1918, was fixed by the Allied Rubber Committee at 22,000 tons of which 15,000 are to be landed at Marseilles. The imports at that port before the war were 800 to 900 tons a year, but in the last two years they have increased to about 8,000 tons yearly.

TIRE EQUIPMENT OF FRENCH MOTOR CARS.

Examples of the tires now used in France are shown in a circular recently received from a prominent automobile dealer of Paris. A touring car has wire wheels, 820 by 120 m. m., equipped with pneumatic tires, the two rear ones being non-skid. A heavy truck, carrying 4,000 kilos net, has solid tires, front wheels 940 by 130 m. m. with single tires; rear wheels, 1,000 by 130 m. m. with twin tires. A light truck, to carry 1,000 to 1,500 kilos net, may have wheels with either pneumatic or solid tires: for the pneumatic, wheels of Michelin steel plate with tires 920 by 120 m. m., single in front and twin in the rear, two being non-skid. For the solid tires, wheels of wood with 900 by 90 m. m. tires, single in front and twin in the rear.

GERMAN BELTING SUBSTITUTES.

German ingenuity during the war was directed, among other things, to finding substitutes for leather and rubber driving belts. Belts made of tissues sewn together or one rolled inside another were found to be very resistant and strong in the edges. The friction was slight, and they could be mended easily. These were made chiefly of spun flax, hemp or paper yarn. Cellulose materials used for medium-sized machinery belts would not stand much tension. Yarn belts were also woven into tube form, then flattened and sewed together, the material being linen or paper; these proved very useful. Substitute rubber was used for belts where crude rubber or balata had been used before; it did not melt when heated by friction, but it could not stand much tension.

ITALIAN SULPHUR.

There has been a shortage of sulphur in Italy. The price, which was 160 lire ($20.88) a ton a year or so ago, went up to 425 lire gold ($82.02) when the armistice was signed. The stock in Sicily was nearly used up owing to the shortage in labor and the demands of the Allies; now the sulphur properties are to be worked to full capacity.

At Mologna, where they managed to keep the works in full operation, a plant has been laid down for making sulphuric acid from the vapor that arises from vents and borings. The Montecutini Company, which turned out 388,000 tons of the half million tons of sulphuric sulphur produced by Italy in 1917, has amalgamated with the Romagna Co. They will exploit again the Boratella and Montecutini mines, which were once esteemed the richest in Italy, but have been long closed. The Agoria mines, at Cordevole, which were closed and partly destroyed in order that the Austrians might not get them have started up again.

DUTCH EAST INDIES RESTRICTION.

Holland places restrictions on visitors to her East Indian colonies. They can land only at specified ports in Java, Sumatra, Borneo, Celebes, Tunis, and the smaller islands, and even there must have disembarkation permits. If they think of staying for any length of time they must procure admission certificates or permits to settle.

IMPORTS OF RUBBER GOODS TO VICTORIA, AUSTRALIA, IN THE FIRST three months of 1919 amounted to £174,633 in value, against £112,203 in the same quarter of 1918.

BRITISH DEALERS ARE TROUBLED AT THE PREFERENCE SHOWN BY Brazil and Argentina of late for rubber goods from the United States. Brazilian imports of rubber goods from England in 1918 amounted to 778 tons, as compared with 1,189 tons in 1913, the last full year before the war.

SAMOA HAS BEEN PRODUCING RUBBER TO THE VALUE OF ABOUT $100,000 a year, but this is likely to fall off for a time owing to plantation difficulties.

Rubber Planting on the West Coast of Borneo.[1]

THE FIRST *Hevea* seeds to be planted in Pontianak, West Borneo, were imported from Malacca in 1903 by the Chinese and an Englishman, A. Simons, who later became manager of the Kopoewas Rubber Maatschappij, Soengei Dekan Estate. The Chinese and the well-to-do inlanders were the first to experiment with this new industry, and for want of better ground, they planted on old peat beds. In the Chinese districts of Mandor the first rubber planters were formerly Chinese mine-workers, who, when the mines failed, devoted themselves more and more to agriculture. The commerce with Batavia and other ports of Java is of considerable importance, and West Borneo being only 32 hours by steamer from Singapore, is another factor favoring the rapid growth of the rubber industry in Borneo.

A Simon, formerly a mining engineer, planted the first seeds around his home at Bengkalon, in the Kapoewas district and at Smitau in the upper Kapoewas where the oldest rubber trees of that region are found. The climate and ground are well adapted to the cultivation of rubber, and in 1910 many Chinese and inlanders planted their rice fields with *Hevea*.

Hadji Oesoep Saigon, the Nestor of the inland rubber planters, persuaded the Sultan of Pontianak to turn over his grounds around the Kampong to the people for rubber planting, with the result that now there are large plantations in that section where hundreds of coolies and tappers earn their living. Thousands of seeds in small low cases, each containing from 250 to 500 plants, were conveyed to the upper districts in native boats, and the decks of the little Chinese tongkans were floating *Hevea*-nurseries. In the beginning they planted *Ficus elastica*, and *Manihots* also were seen, but these were soon replaced by the hardier *Hevea*.

("*De Indische Mercuur.*")

TAPPING RUBBER TREES FROM BOATS.

The Europeans, alarmed by the low rubber prices, did not enlarge their plantations during 1917, and plantations could be obtained for very little money. Seeds were also cheaper, and the inlander, being of the opinion that the present low prices could not prevail, planted every available space with *Hevea*, the cultivation of which is not difficult.

In the fourth year the heaviest underbrush is cut down and thenceforth the trees are left to grow without further care. The scarcity of coolie labor does not concern the small planter, for he expects to do the work with the assistance of his wife, children, and other relatives.

The importance of the native planters in comparison with the Europeans is clearly shown in the export figures. The European production in 1917 was only one-fourth of that of the native production, and only a little more than one-fifth of the total export. The total export for 1917 was estimated at 2,970,240 pounds. Of this more or less than 560,000 pounds was of European production. The production of inland and Chinese rubber plantations, appraised at 550 pounds per hectare[2] per year, brings the producing area to 4,349 hectares, more or less. The unproductive area is even greater, being estimated at 8,600 hectares. Planted about 600 trees per bouw[2] the total would be 7,250,000 trees.

In ordinary soil, production on land with 50 to 65 per cent of sand is fairly good, while production on the same ground with 70 to 75 per cent sand is very good, and level ground with a standard of 80 to 85 per cent of fine sand, strange to say, also yields a fairly good average; trees on the latter, however, should be tapped very early as the ground dries out quickly. In Pematang soils, where the amount of sand is 85 per cent (highest sand percentage), the absence of plant diseases is noticeable, the growth is quicker, and the bark harder and thinner than on rich and old peat soil. The production is above average, apparently due to the ease with which the water is drained from the land in case of floods, while in dry weather, at a long period of drought, when the top soil is hot and very dry, it is cool and moist under the surface. This condition suggests the feasibility of dry farming.

Various products, such as vegetables, are planted with *Hevea* while the trees are young, even sugar-cane being grown. Coffee is not a profitable venture, as the rubber trees cast considerable shade after a few years, retarding the growth of the coffee plants.

Plant diseases in general are not numerous, the most important being the *Djamoer oepas* (striped canker), and knobbed canker (forming nodules in the cortex of *Hevea*). The latter is most generally known in the Pontianak section.

In Pontianak the average production of one laborer, tapping about 300 trees per day, is 1½ to 2 catties[2] for trees older than 7 years and 1 to 1½ catties for trees younger than 7 years. On Pematang grounds the production from six-year-old trees is 5 grams per day from one tree. On marshy ground near the shore the average is 3 to 4 grams for 5 to 6-year-old trees. As the trees are very close together and the tapping methods crude, this is considered a good average. The European plantations number about eight in that region, and having contract laborers, show better results in general. It has been proved that it is possible for trees older than 10 years and younger than 14 years, planted on good soil and well cultivated, to yield 2,200 pounds of dry rubber per hectare per year, and it has also been proved that 6 or 7-year-old trees will yield an average of 6 to 10 grams per tree per tapping.

The most commonly used methods of tapping are the V-cut and the herring-bone with two cuts. Every Chinese and native planter prepares his own rubber. Wealthier planters have 20 to 40 tappers who do the work entirely on the European scale. Calenders with smooth and ribbed rollers, a work-shed and a smoke house, nearly all of primitive construction, are their only requirements. Alum is used a great deal as an accelerator of coagulation, being cheaper and more easily obtained, the large carboys of acetic acid being beyond the means of most of the native planters. Alum also has the advantage of coagulating without the danger of its becoming moldy.

Mixing inferior rubber with *Hevea* was often done in the beginning. Bush rubber having been in water for some time

[1] Th. A. de Neve in "*De Indische Mercuur*," March 7, 1919.

[2] A cattie = 1.33 pounds. A hectare = 2.4711 acres. A bouw = 1.754 acres.

and not fit for sale was mixed with *Hevea* and worked through the machines into crèpe, scrap, etc.

Zinc coagulation tanks were gradually replaced by wooden ones. The little Chinese earthen-ware cups were used as latex cups, which served the purpose very well and are to be obtained at a very reasonable price. The Chinese inlander or exporter pays little attention to the packing, the rubber sheets coming from various sources being bundled and tied with ropes and hoisted on board the ship for the Singapore market. Notwithstanding the crude methods of preparing and packing the rubber, it is unusually pure and free from foreign matter.

Pontianak boasts of a rubber market where rubber dealers from inland and elsewhere present their rubber to be sold to the highest bidder. Lately the Japanese have bought rubber, not only from the European, but from the Chinese planters as well.

The question of labor has caused the proprietors of the larger plantations much trouble. In the beginning, coolie tappers received 24 florins a month or 80 cents (Dutch currency) a day. Free coolies, Pontianakers, Javanese, etc., were also employed. These arbitrary people went from one plantation to another, terrorizing the foremen who had little authority over the laborers who worked as long as they pleased, and at their own terms, so that many plantation owners were forced to shut down. Conditions, however, have changed and coolies are satisfied to work for 9 to 10 florins per month.

The Chinese planters are also in need of workers. Formerly Chinese labor was plentiful and cheap, but in 1913 the government imposed a levy of 25 florins for Chinese entering the country. Not long ago a law was passed forcing them to make payment in Singapore. Previously this could be done in Pontianak. The government fears that after planting *Hevea* and other well-paying crops the people will not care to raise rice any longer, and will suffer for want of food. The Chinese have the best rice fields in the west, and also raise pepper, gambier, sago, cocoa, rubber and even sugar cane, and although they are said to be ignorant and careless, the fact remains that they are directly responsible for the progress of the West Coast.

Rubber Planting Notes.

RUBBER PLANTING IN WEST DUTCH BORNEO.

RUBBER culture has extended greatly in West Dutch Borneo in the last ten years. Nearly 90 per cent. of the plantations belong to Chinese, Malayans, and, more recently, to Japanese. The climate is well suited for rubber; rain falls the year around, and there is no dry season as in Java. Labor conditions are favorable, for Borneo has plenty of native laborers, Dyaks for the hard work, like felling the jungle, and Malayans for lighter work, like weeding, tapping, etc. Most of the estates are of comparatively small size. Nearly every Malayan has an estate of 50,000 to 60,000 trees, too closely planted, and their handling of the crop is primitive. They borrow of the Chinese, who in that way come to own plantations too, while the Malayan sinks to the status of a coolie. The rubber production of West Borneo was as follows

1915	*pounds*	100,936
1916		313,616
1917		542,145
1918		750,640

It is expected that in five years the output of the Sambas estates alone will be 6,600,000 pounds.

RUBBER PLANTING IN BRITISH NORTH BORNEO.

In 1917 about 3,000 additional acres were planted in British North Borneo, making the total acreage 34,828, according to the "Annual Report for Agriculture," British North Borneo, 1917. Of this area, 21,400 acres, representing half the total number of trees, were tapped. The production in 1917 was 2,611 tons, of which 2,444 was exported. In 1917, 14,292 coolies were employed, the number having doubled in two years. Much of the land is hilly and the question of soil erosion is serious.

EXPORT DUTY ON FRENCH COLONIAL RUBBER.

A proposal to put a duty of 1.50 francs per kilogram ($0.13+ per pound) on raw rubber that is not produced in the French Colonies has been made by the Deputy for Indo-China. The Paris Chamber of Commerce has protested vigorously against the proposed law.

RUBBER LANDS IN BRITISH EAST AFRICA.

The new governor of British East Africa, Gen. Sir Edward Northey, in expatiating on the advantages of all East Africa, from Somaliland and Abyssinia to Natal, for white immigration, owing to the accessibility to temperate climate on the mountains and high tableland, called attention to the variety of crops that can be raised, among them rubber, along the whole extent and especially in the Lake Nyassa region.

AMENITIES OF MALAYAN RUBBER CULTIVATION.

Various incidents recorded in the "Straits Budget" show how the monotony of plantation life is broken. In Kajang a herd of elephants broke into an estate and destroyed 600 rubber trees. At Tangakah the coolies would not work because a tiger was carrying away pigs; he was shot a few days afterward and weighed 300 pounds; at Sungei Senai another tiger carried off a tapper in broad daylight and only fragments of the man were found later. In Singapore itself a 16-foot-long cobra was found one one of the piers, and, after it had been noosed, dragged off the pier to the highroad three men who were holding it.

PARA RUBBER IN UGANDA, AFRICA.

In Uganda, Pará rubber has become the main crop on most plantations, particularly those in the more humid parts of the Protectorate. Other rubbers are neglected because *Hevea* proves well suited to conditions, and suffers little from pests and diseases. The 1918 output was 144,727 pounds of plantation rubber valued at £9,965, and 9,362 pounds of forest rubber worth £923. Prices are low on account of the restrictions of the United States on imports and prices.

EXPORT DUTY ON NETHERLAND EAST INDIAN RUBBER.

The *Persbureau Vaz Dias* of Amsterdam, Holland, reports that plans are being made to levy a tax of 10 to 15 cents Dutch currency (4 to 6 cents U. S. currency) per pound on crude rubber shipped from the Netherland East Indies.

Protests have been made by the *Internationale Vereeniging voor de Rubberkultuur* (International Society for Rubber Culture) at the Hague, representing nearly all the Netherland East Indian plantations, and also by *de Amsterdamsche Vereeniging voor den Rubber Handel* (Amsterdam Society for the Rubber Trade), which is made up of dealers, brokers and plantations.

Fear is expressed that higher prices, which necessarily must follow the adoption of the proposed plan, would prevent competition with the Netherland East Indian rubber in the world market. While an export duty might not result in profit to the

older plantations, it would without doubt adversely affect the younger ones.

EXTRACTING OIL FROM HEVEA SEEDS.

Planters of *Hevea* have been led to believe that they could make large profits by extracting oil from the seeds, but experiments, the results of which were published in the *"Bulletin Economique de l'Indo-Chine,"* show the expense of collecting the seeds and extracting the oil to be so great that the net returns are not encouraging. The percentage of oil in the seeds was found to be 30 instead of 40 as anticipated, and the number of seeds produced by each tree was much less than the estimates. It seems probable that better results may be expected from improved methods of gathering and treating the seeds, as the oil content is considerable.

WAX-COATED COAGULATING TRAYS.

Wooden trays made waterproof by being coated with a special composition of wax, and intended to take the place of the enamelled dishes used in coagulating rubber latex have been invented by Gordon Skene in Ceylon. The tray is as large as four of the ordinary dishes.

RUBBER ACREAGE IN INDIA.

The following was the acreage of rubber cultivation in India at the end of 1917: South India, 47,631 acres, 37,510 in tapping. Burma, 63,857 acres, 27,172 in tapping. Assam, 3,064 acres *Ficus elastica.*

WET ROT IN HEVEA ROOTS.

Fomes pseudo-ferreus is the cause of "wet rot" in the roots of the Pará rubber tree, according to the Department of Agriculture of the Federated Malay States, Bulletin 28. Three species have now been found that can live parasitically on *Hevea*: *fomes lignosus*, the white root fungus; *fomes lamasensis*, the brown root disease, and *fomes pseudo-ferreus.*

INDIA RUBBER IN ITALIAN SOMALILAND.

FROM THE INVESTIGATIONS of botanists and other scientific travelers and from many practical agricultural experiments, it has been demonstrated that in Italian Somaliland many important rubber-yielding plants are to be found growing wild, and also that the surroundings, if properly chosen, are favorable for the culture of *Manihot Glaziovii.* Though experiments in cultivation have met with varying success, a colonial farmer, P. Guelfi-Camajani, asserts in the *"Tribuna Coloniale,"* Rome, that they have taught both scientific men and practical farmers how to surmount the obstacles in their way and strong efforts to establish rubber culture would already have been made had it not been for the war.

Various members of the *Apocinaceae* family flourish in Somaliland; those found so far are: *Landolphia Florida, Landolphia petersiana, Adenium coëtanum* and *Hunteria Africana. Landolphia Florida*, in Somali "Mabargo," is found all over Africa; in Somaliland it grows in moist places and gives plenty of latex. The analyses of the plant latices were all made in the Pirelli laboratories, the report stating that the Somali *Landolphia Florida* yielded 18.8 per cent caoutchouc and 79.2 per cent resin, the rubber being of light color and possessing nerve, the resin having a low fusion point. The *Landolphia petersiana* has its home in East Africa. The London Imperial Institute's analysis of that grown in British East Africa gave 82.5 and 80.7 per cent caoutchouc, with 13.4 and 12.6 per cent resin; the quality is close to that of the *Hevea* Pará. The *Hunteria Africana* seems to have some rubber qualities, while the analysis of the latex of *Adenium coëtanum* by the Pirellis gave 85 per cent resin and 15 per cent of a substance like gutta percha.

Of the *Euphorbiaceae* there are half a dozen varieties, only two of which, however, have a rubber value. *Euphorbia cuneata,* in Somali "Da-ri-nder," gives a latex containing 17.7 per cent caoutchouc and 81.80 per cent. resin; the latter is hard, fragile, and neuter. The caoutchouc has little nerve, cannot stand a temperature above 50 degrees C., but, it is believed, can be utilized in the rubber industry. *Euphorbia Tiracalli,* in Somali "Dauno," flourishes in arid places; it could be planted in the many desert portions of the land. It gives an abundant latex which yields 12.2 per cent caoutchouc and 87 per cent resin. This rubber in Senator Pirelli's opinion can be utilized in the rubber industry, and can be substituted for jelutong.

The *Manihot Glaziovii,* imported from Brazil, where it yields the Ceara rubber, flourishes admirably in East Africa. In Somaliland it is the only plant that is cultivated on the rubber plantations. The field is open for Italian enterprise to develop the production of both the cultivated and the wild forms of caoutchouc.

Meanwhile, at the Versailles conference, Italy is pleading to have her Eritrea and Somaliland colonies joined by the concession to her of British Somaliland and the intervening strip of coast. This would cut off Abyssinia effectually from the sea.

RUBBER SOURCES AND RECONSTRUCTION POLICIES.

THE LISTING OF GOVERNMENT CONTROL of raw material among the reconstruction policies of European nations again draws attention to the complete dependence of American rubber industry upon importation of crude rubbers. The situation is concisely set forth in the "Commerce Reports" of August 1, 1919, by the following statistics compiled by a representative of an American company.

While it is intimated that the reconstruction policies being formulated abroad will not be without effect on America's supply of crude rubber, it hardly seems credible, in the face of the present great over-production and the anxiety of thousands of plantation shareholders, that any government will find it either necessary or wise to hamper the normal dealings of rubber planters with their best customers in the United States.

The facts and statistics presented are in part as follows:

During 1917 Far Eastern plantations produced about 79.5 per cent of the world's supply of crude rubber; the British colonies turned out approximately 80 per cent of this, or 63 per cent of the total production of the world.

The only place on American soil where conditions have been found favorable to rubber growing is the insignificant total of the Philippine Islands, where 147 tons was produced in Mindanao in 1917, or sufficient to last one of the large American manufacturers about one day. Owing to an insufficient supply of good cheap labor (our Government prohibits the importation of Chinese coolies) and government restriction limiting to 2,500 acres the amount of land which corporations can own, the investment of American capital has been restricted and discouraged.

OWNERSHIP OF RUBBER PLANTATIONS IN THE FAR EAST.

It is notable that 76 per cent of planted acreage of plantation rubber is owned by British capital and 2.8 per cent by American capital, according to best available authorities, as follows:

Plantation Interests.	Acreage.	Per Cent.
British	1,513,576	75.9
Dutch	260,000	13.0
French and Belgian	109,900	5.0
American	55,000	2.8
German	3,400	.2
All other	63,577	3.1
Total	1,995,553	100.0

The 55,000 acres planted and controlled by American capital comprise the estate of the United States Rubber Plantations, Inc., in Sumatra. American interests have also recently acquired 40,000 acres of undeveloped land in Sumatra. The Goodyear

Sumatra plantations include 20,000 acres. A very limited area is also planted to rubber in Mindanao, Philippines.

A fraction of over 66 per cent of all rubber plantations are situated in British colonies, so that Great Britain exercises both political and financial control over the supply of this important raw material. Of the total acreage under British control 807,491 acres are in the Federated Malay States and Johore, 159,500 acres in the Straits Settlements, 251,500 in Ceylon, 41,820 in South India, 29,880 in British Borneo, 26,390 in British Burmah and 5,000 in the South Sea Islands.

Under the Dutch flag there are 352,455 acres in Sumatra, 238,830 acres in Java and 10,100 acres in Dutch Borneo, giving the Netherlands political control over 49 per cent of the total world acreage in rubber plantations. France controls 10,000 acres in Cochin China, and the share of all other countries amounts to 62,577 acres. An almost unlimited area of desirable land for rubber plantations is as yet available for development in Sumatra and Borneo, but such is not the case with the Malay Peninsula, Ceylon and Java.

SINGAPORE REPLACING LONDON AS THE WORLD'S RUBBER CENTER.

Before the war plantation rubber was shipped direct from Singapore, Colombo, and other ports in the Far East to London, where it was sold at auction. London had always been the world's greatest rubber market. But the submarine menace, together with high ocean freight and war-risk rates and lack of tonnage, placed London at a disadvantage, so that the Singapore market and the Far East has become, temporarily at least, the world's rubber market. The Singapore rubber auctions are growing more and more important and buying of crude rubber is largely centered there. In addition to representatives of all large American manufacturers, all large American and London dealers now have buyers at Singapore. Sales in the Singapore auctions have grown from 552 tons in the year of their origin (1912) to 24,316 tons in 1917. Practically all plantation rubber is now imported into the United States via the Pacific direct from the Far East, in Japanese tonnage.

Although the London market seems without particular influence on conditions here, from a broad point of view, we should not discount consideration of London as a factor in the rubber market; for the majority of rubber plantations are British-owned, and in nearly every case have their central offices in London, and from that city the directors are controlling the sales. It is not unlikely that after shipping, financial, and other conditions resume normal state London may again become a greater factor in the rubber market.

RUBBER LANDS RESTRICTIONS REMOVED.

The rubber lands restriction enactment of 1917, an ordinance of the Government of the Federated Malay States, was intended to discourage American and other alien interests taking up land at a time when British interests were involved in abnormal conditions and at a disadvantage, and provided for discontinuance of land grants of more than 50 acres in extent to aliens. An amendment was passed by the Federated Malay States Legislative Council late in 1917, however, placing British subjects on a par with aliens so far as their position with regard to acquiring rubber lands is concerned.

All British plantation companies, in addition to excess-profits tax, were required to pay export duty of 2½ per cent ad valorem on output of estates when the price of cultivated rubber does not exceed 2*s.* 6*d.* per pound, f. o. b. east (which is equivalent to 60 cents gold), and otherwise 5 per cent. The established price is based on standard first latex crêpe. Alien producing companies in British territory, including American, were likewise subjected to the payment of export duty.

MINIMUM PRICES AND RESTRICTED PRODUCTION IN THE FAR EAST.

After the American import restrictions were imposed, and with immense stocks accumulating in primary markets, there developed among far east plantation interests, particularly their financial interests in London, considerable agitation for government regulation and protection of producers by establishig minimum prices and restricting output.

Early in August, 1918, Ceylon adopted 125 pounds per acre as maximum production. With prices near the cost of production and the situation acute, an investigating commission was appointed in Singapore by plantation interests, to formulate definite plans and recommendations to submit to the local colonial government and the home British Government, for fixing prices and restricting production. In the meantime temporary measures of relief were provided by the colonial government's suspending export duty and war tax and granting temporary loans to rubber cultivators.

Later the investigating commission appointed by the plantation interests recommended a total restriction of 50 pounds per acre per quarter and the formation of an Imperial trust to buy prime qualities at $1 Straits ($0.56¾ gold) per pound ex warehouse Singapore; or, as an alternative, for the Government to fix the price at $0.80 Straits ($0.45 gold), and to appoint a rubber controller to place orders. The Dutch Government was alleged to be favorable to this plan. The commission estimated that the world consumption of plantation rubber during 1919 would be 117,000 tons.

In order to control raw materials the Netherlands Government prohibited the export of rubber from the Dutch East Indies except by permit.

JAPANESE RUBBER PLANTATIONS IN THE MALAY PENINSULA.

The area of Japanese rubber plantations in the Malay Peninsula, located chiefly in the State of Johore, and held by 125 men, is estimated at 93,803 acres, of which 51,166 acres are already planted and yield 344,000 pounds, or about 154 tons monthly.

Rubber manufacture in Japan is making gradual progress. Imports of crude rubber into Japan amounted in 1917 to 3,748 tons, costing $4,565,113, as compared with 2,961 tons, costing $3,623,005 in 1916—an increase of 27 per cent. Japan during 1918 is said to be importing double the amount of rubber imported during 1917.

THE RUBBER SITUATION IN BRAZIL.

AN INTELLIGENT EXAMINATION of the Brazilian rubber trade appears in "Wileman's Brazilian Review" for April 23, 1919. A few figures serve as a text:

SHIPMENTS OF RUBBER.

	Tons.	Value.
1913	36,232	£10,375,000
1917	33,998	7,484,000
1918	22,662	3,998,000

In 1918 the exportation was one-third less than the year before, while the rubber brought in was only about one-half as much. The quantity is not exact, because 6,000 tons more were produced, but were retained by the Brazilian banks and not exported. The writer thinks it fairer and more scientific to compare the figures for the 4 war years with the 4 years preceding. For those periods the decrease in tons was 35,810, or 18.6 per cent, while that in value was £52,018,000, or 61.1 per cent. "These figures show the tenacity with which the Brazilian rubber industry has in the face of tremendous depreciation and difficulties of every kind, maintained a brave front," and has put off "the complete extinction and transfer to the East" of the wild rubber industry. "So long as hard, fine rubber enjoys a premium over every other kind" that prediction will not come true. Yet hard fine which rose to 12s. 9d. a pound in 1910 in the London market, sank to 1s. 8½d. at the beginning of April, 1919.

In 1900 Brazil's rival in rubber production was Africa; the Eastern plantations producing only 4 tons; the figures being 26,750 tons for Brazil and 27,136 for Africa, the only year save one when Africa was ahead. In 1918 the Eastern plantations produced 200,950 tons, Brazil 30,700, and the rest of the world, chiefly Africa, 9,929 tons.

Production:—	Plantation.	Brazil.[1]	Rest.	Totals.	Percentage of Increase or Decrease. Per Cent.
1900	4	26,750	27,136	53,890	....
1901	5	30,300	24,545	54,850	+ 1.7
1902	8	28,700	23,632	52,340	— 4.5
1903	21	31,100	24,829	55,950	+ 6.8
1904	43	30,000	32,077	62,120	+11.0
1905	145	35,000	27,000	62,145	+ .04
1906	510	36,000	29,700	66,210	+ 6.5
1907	1,000	38,000	30,000	69,000	+ 4.2
1908	1,800	39,000	24,600	65 400	— 5.2
1909	3,600	42,000	24,000	69,600	+ 6.4
1910	8,200	40,800	21,500	70,500	+ 1.2
1911	14,419	37,730	23,000	75,149	+ 6.5
1912	28,518	42,410	28,000	98,928	+31.6
1913	47,618	39,370	21,452	108,440	+ 9.6
1914	71,380	37,000	12,000	120,380	+11.0
1915	107,867	37,220	13,615	158,702	+31.8
1916	152,650	36,500	12,448	201,598	+27.0
1917	213,070	39,370	13.258	265,698	+31.0
1918	200,950	30,700	9,929	241 579	— 9.0
1919 (estimate)	230,000	33,000	10,000	273,000	+13.4
Summary:—					
1909-1913 (before war).	102,355	202,310	117,952	422,617	....
Relative production	24.2%	47.9%	27.9%	100.0%	....
1914-1918 (during war).	745,917	180,790	61,250	987,957	....
Relative production	75.5%	18.2%	6.3%	100.0%	....

[1] Inclusive of Brazil, Bolivia and Peru.

The writer hopes that as the percentage of new acreage for the plantations has fallen off greatly during the war, the increased proportion of rubber production will be such that Brazil can contend against it.

The States of Pará and Manáos are practically bankrupt and have applied to the Federal Government for help; it is suggested that that government should assume the administration of both. The Amazon rubber industry has seen its worst, but it has laid the foundations of an agricultural industry that may feed it. The demand for rubber may exceed the supply, and the thing to do is to improve the methods employed and the quality, and even perhaps manufacture *in situ*.

RUBBER EXPORTS FROM PARA.

THE STATISTICS of the Port of Pará Company give the total of rubber exports for 1918 as 29,119 tons (65,226,560 pounds), and the following table summarizes the actual rubber exports for the last four years, together with the regions from which the products came:

From:	Pounds. 1915.	1916.	1917.	1918.
States of Pará, Amazonas and Matto Grosso	30,103,135	27,509,702	26,648,246	18,794,094
Acre Federal	21,651,398	19,142,026	23,142,718	18,086,990
Bolivia, Peru, etc.	12,729,339	15,309,604	29,970,772	27,181,836
Totals	64,483,872	61,961,332	79,761,736	64,062,920

The total amount of rubber received at the port of Pará during 1918 was 54,716,116 pounds, as follows:

	Pounds.
State of Pará	14,310,828
State of Amazonas	372,497
State of Matto Grosso	1,172,765
Acre Federal	15,493,806
Bolivia	6,683,620
Peru	2,334,915
Unclassified	14,347,685
Totals	54,716,116

The net weight of rubber exported was 47,643,086 pounds, of which there were shipped to:

	Pounds.	Per Cent.
Liverpool	10,622,878	22.2
Havre	1,916,539	4.2
New York	34,342,832	72.1
South America, etc.	181,588	.3
Barbados	579,249	1.2
	47,643,086	100.0

The quantities of rubber thus shipped were:

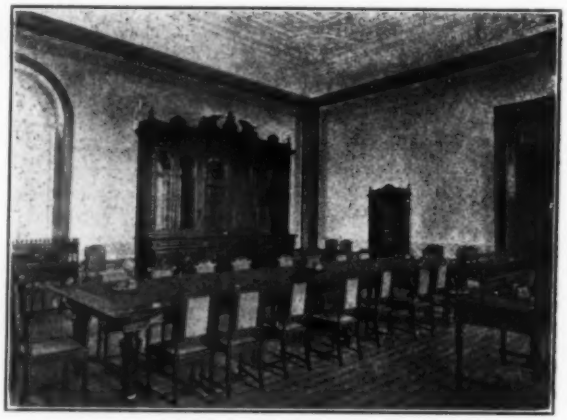
	Pounds.
Fine	17,559,821
Medium	1,236,123
Sernamby	6,341,284
Caucho	7,776,267
Other grades	14,729,591
	47,643,086

The quantity of Bolivian rubber actually sent to Pará during the year is registered at 6,672,818 pounds (gross weight), while 2,334,915 pounds came from Peru.

THE RUBBER TREE ASSOCIATION OF AMAZONAS.

The *Club da Seringueira*, the rubber-tree club, a section of the Agricultural Association of Amazonas, at Manáos, Brazil, was incorporated April 24, 1916, in accordance with the laws of Brazil, and designated "an institution of public utility" by the Brazilian Government, December 27, 1917. It took over at once the supervision of the *Seringal Miry*, an experimental rubber estate, which had been started in September, 1916. The club also began operations at the *Campo de Experiencias da Sociedade Amazonense de Agricultura*, which had been handed over to the Government three years before when all work was suspended; Dr. Angelino Bevilacqua is director of this and C. J. Carvalhaes, manager of the *Seringal*. The club receives financial aid from the State of Amazonas and publishes a monthly bulletin *"A Seringueira,"* which contains not only news of the doings at the stations it supervises, but also interesting rubber information from all parts of the world.

The president of the Club is José Claudio de Mesquita, with Dr. Osman Pedroso, Dr. Alpedo A. da Matta, Dr. Antonio Crespo de Castro and Dr. Angelino Bevilacqua as directors; the secretary is Arthur Ferreira, who is on the administrative council with Dr. Esmeraldo A. da Silva Coelho, Dr. Alcides Bahia, Dr. Francisco P. de Araujo and Raymundo C. Montiero da Costa.



HEADQUARTERS OF THE CLUB DA SERINGUEIRA.

The office of the club is in the building of the *Associação Commercial* (Business Association), Rua Marechal Deodoro, Manáos.

The Club has selected June 24 as "Rubber Day" and celebrates the occasion by public festivities in the *Seringal Miry*, where experiments in everything that relates to the cultivation and extraction of rubber are carried on and suggested improvements are tried out.

TWO NEW OCEAN CABLES PROPOSED.

An effort is being made by American firms with trade interests in the Orient to have a second Pacific cable laid. The present one from San Francisco through Honolulu, Guam and Yokohama to Shanghai has become wholly inadequate to meet the demands of the increased business during and since the war, and the average time for a message from San Francisco to Yokohama or Shanghai is now about four days. A committee has been appointed by the National Foreign Trade Council to investigate conditions and urge the present Pacific Cable Company to extend its facilities. Reliable estimates place the cost of another cable in the neighborhood of $8,000,000, and it is believed that such a cable would soon pay for itself with the increasing trade in the Far East.

Large business interests in the United States and Scandinavian countries are also projecting a cable between New York and Sweden, probably ending in Gothenburg. The congested condition of the Atlantic cables, as well as the increased trade with Norway, Finland and Russia, are responsible to a great extent for the project, but a northern route of communication has been needed for some time.

REASONS GIVEN FOR THE REDUCED OUTPUT OF RUBBER FROM Brazil are the low level of rubber prices, the abnormally low prices for caucho and the epidemic of Spanish influenza which impeded work.

THE "REVISTA DA ASSOCIACÃO COMMERCIAL DO AMAZONAS" concurs in the opinion of THE INDIA RUBBER WORLD, quoting as follows: "Numberless risks might result from any modification of the method of extraction—well-smoked "Pará rubber is the best in the world."

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED JULY 8, 1919.

NO. 1,308,774. Hose supporter. W. E. Cowling, Sioux City, Ia.
1,308,846. Metal and rubber tire. F. F. Green, Colgate, Okla.
1,308,870. Girdle of elastic webbing. M. W. Schloss, assignor to the Treo Co., Inc.—both of New York City.
1,309,047. Rubber boot or shoe. R. B. Price, New York City, assignor to The Goodyear's Metallic Rubber Shoe Co., Naugatuck, Conn.
1,309,249. Tire liner. J. H. Grube, assignor to Airsafe Inner Tire Co.—both of Los Angeles, Calif.
1,309,440. Tire tread. H. M. Lambert, assignor to Lambert Tire & Rubber Co.—both of Portland, Ore.
1,309,466. Cushion tire. B. E. Chute, Tucson, Ariz.

ISSUED JULY 15, 1919.

1,309,691. Hose supporter. C. E. Morehouse, Milwaukee, Wis.
1,309,765. Man's garter. C. L. Meyer, Bellevue Borough, Pa.
1,309,795. Tire-stem cap. R. A. Campbell, Minneapolis, Minn.
1,309,912. Garter. H. J. Penn, Madison, N. C.
1,310,048. Demountable rim for tires. E. K. Baker, assignor to the Universal Rim Co.—both of Chicago, Ill.
1,310,084. Hose supporter. E. C. Jones, Toronto, Ont.
1,310,113. Non-puncturable tire. H. H. Culmer, Chicago, Ill.
1,310,119. Elastic strap fastener. C. D. Harper, Akron, O., assignor to The B. F. Goodrich Co., New York City.
1,310,121. Inner tube. G. A. Lane, Perris, Calif.
1,310,156. Blow-out patch of rubber-coated wire fabric, with vacuum-cup outer surface. L. F. Clark, Fanwood, assignor of ½ to A. L. Stebor, Jr., Plainfield—both in New Jersey.
1,310,186. Rubber-covered pads for attaching to automobile pedals. F. C. Grant, Chicago, Ill.
1,310,212. Bead cure for pneumatic tires. H. K. Raymond and I. R. Renner, Akron, O., assignors to The B. F. Goodrich Co., New York City.
1,310,300. Pneumatic cushion tire. H. H. Schramm, New York City.
1,310,364. Demountable rim for tires. C. De C. and G. A. Moll, Olathe, Kans.

ISSUED JULY 22, 1919.

1,310,438. Inner tube for pneumatic tires, composed of numerous contiguous sheets of rubber with grain running in different directions. F. T. Roberts, Cleveland, O.
1,310,513. Resilient tire. E. J. Taylor, Edmonton, Alta.
1,310,527. Tobacco pouch. V. Guinzburg, assignor to I. B. Kleinert Rubber Co.—both of New York City.
1,310,825. Respiratory apparatus. J. M. Ganzer, Poughkeepsie, N. Y.
1,311,024. Resilient wheel. J. Stuart, St. Kilda, Melbourne, Victoria.
1,311,126. Split rim for tires. J. Kelsey, assignor to Kelsey Wheel Co., Inc.—both of Detroit, Mich.

ISSUED JULY 29, 1919.

1,311,163. Resilient tire. G. E. Gilmore, Cleveland, and H. M. Hanes, Wellington, assignors by direct and mesne assignments to The Security Tire & Rubber Co., Cleveland—both in Ohio.
1,311,269. Wheel rim with removable side flange for tires. C. W. Gressle, assignor by mesne assignments to The Standard Parts Co.—both of Cleveland, O.
1,311,309. Two-part interlocking pneumatic tire. B. E. Bliss, Wichita, Kans.
1,311,444. Corset with elastic inserts. G. Heilner, New York City.
1,311,545. Composite heel with resilient tread portion. H. R. Abbott, assignor to Brockton Heel Co., Inc.—both of Brockton, Mass.
1,311,720. Detachable tread for pneumatic tires. L. T. Sintzel, Los Angeles, Calif.
1,311,728. Rubber udder-protector. F. A. Thornton, Corsicana, Tex.
1,311,743. Resilient sandpaper drum, with facing of sponge rubber. M. L. Beal, Pasadena, Calif.
1,311,750. Detachable tread for pneumatic tire. A. A. Brashear, Santa Barbara, Calif.
1,311,806. Sectional pneumatic tire. H. B. Coats, Veedersburg, Ind.
1,311,857. Laminated rubber and asbestos fabric for tire casings. C. B. Doolin, San Antonio, Tex.

THE DOMINION OF CANADA.

ISSUED JULY 15, 1919.

191,512. Garment supporter. R. T. Clarke, Columbus, O., U. S. A.
191,580. Rubber sole for turn shoes. The United Shoe Machinery Co. of Canada, Limited, Maisonneuve, Que., assignee of S. W. Winslow, Jr., Beverly, Mass., U. S. A.
125,859. Marine life-saving apparatus and one-man boat for submarine observation, having rubberized sleeves and leg portions attached to a metal casing electrically propelled. The Submersible Boat Co., assignee of W. R. Barringer—both of Denver, Colo., U. S. A.

ISSUED JULY 22, 1919.

191,729. Fountain pen. The Conklin Pen Manufacturing Co., Toledo, O., U. S. A.

ISSUED JULY 29, 1919.

191,766. Fountain pen. G. B. Munn and C. H. Marker, coinventors, Warren, Pa., U. S. A.
191,779. Fountain pen. D. Cameron, Edinburgh, Scotland.
191,793. Resilient tire. B. Dahl, Minneapolis, Minn.
191,812. Pneumatic tire casing with outer shoe of tar-impregnated fabric. L. Harris, Benton, Ill., U. S. A.
191,869. Fountain pen. J. F. Siegienski, Thorp, Wis., U. S. A.
191,915. Demountable rim for tires. The Universal Tire Filler Co., Portland, Ore., assignee of M. G. Tennent, Seattle, Wash.—both in U. S. A.
191,924. Inner tube for pneumatic tires. C. R. Rawdon, assignor of ⅓ interest to both J. H. Heitmann and C. D. Hall—all of St. Louis, Mo., U. S. A.

ISSUED AUGUST 5, 1919.

191,974. Inflatable life-preserver coat. S. L. Rors, Lockport, N. Y., U. S. A.

ISSUED AUGUST 12, 1919.

192,077. Rubber-covered roller. J. Muskett, Manchester, Lancaster, England.
192,124. Tire reliner and method of manufacture. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of W. Kearns, Detroit, Mich., U. S. A.

THE UNITED KINGDOM.

ISSUED JULY 2, 1919.

125,795. Device for bathing the eyes. J. J. Pouly, 13 rue de la République, Lyons, and J. M. Daujard, 56 Chemin de Pierre-Bénite Oullins, Rhone—both in France.
125,859. Marine life-saving apparatus and one-man boat for submarine observation, having rubberized sleeves and leg portions attached to a metal casing electrically propelled. W. R. Barringer, Kenmark Hotel, 17th street, Denver, Colo., U. S. A.
125,870. Friction pad with elastic cord encased at edge, to prevent slipping of shoes at the heel. J. T. Wells, 696 Romford Road, Forest Gate, Essex.
125,882. Tire protector consisting of metal plates secured to a rubberized leather band, for use on pneumatic or twin tires. T. H. Gyton, 162 Noone street, Clifton Hall, Victoria, Australia.
125,906. Fountain pen. O. B. Wade, Mayleigh, Petersham Road, Petersham, Surrey.
125,940. Veil with elastic cord inserted at edge. Bonnie-B. Co., 222 Fourth avenue, New York City, assignee of I. Silverberg, Sea View avenue, Far Rockaway, N. Y.—both in U. S. A.
125,947. Nut for use with pneumatic-tire valves, etc. H. P. Kraft, 219 Godwin avenue, Ridgewood, N. J., U. S. A. (Not yet accepted.)
125,967. Nasal douche. H. B. Nichols, 145 East 36th street, New York City. (Not yet accepted.)
125,981. Tire valve. H. P. Kraft, 219 Godwin avenue, Ridgewood, N. J., U. S. A. (Not yet accepted.)
125,989. Cushion tire. J. N. McFate, Phoenix, Arizona, U. S. A. (Not yet accepted.)

ISSUED JULY 9, 1919.

126,116. Pneumatic tire. C. R. Rawdon, 3618 Juniata street; J. H. Heitmann, 4411 Laclede avenue; and C. D. Hall, 5920 Plymouth avenue—all in St. Louis, Mo., U. S. A.
126,176. Revolvable metal and rubber heel. J. W. Wasdell, 54 Mason street, Carters Green, and H. S. Brierley, 31 Tenscore street—both in West Bromwich.
126,177. Engine packing having core of rubber, etc. A. E. White, 88 Chancery Lane, London. (Crane Packing Co., 29 South Clinton street, Chicago, Ill., U. S. A.)
126,297. Respiratory apparatus. J. W. Paul and C. Hall, Fittsburgh, Pa., U. S. A. (Not yet accepted.)

ISSUED JULY 16, 1919.

126,437. Streamline fairing of ebonite, etc. C. H. Gray, India Rubber, Gutta Percha, and Telegraph Works Co., Silvertown, Essex.
126,491. Packing for stuffing-boxes. A. E. White, 88 Chancery Lane, London. (Crane Packing Co., 29 South Clinton street, Chicago, Ill., U. S. A.
126,718. Windshields for airplane landing-wheels. Dunlop Rubber Co., 14 Regent street, Westminster, and F. J. Keegan, Alma street, Coventry.
126,738. Aviator's garment to maintain normal atmospheric pressure on the body. A. F. S. Kent, 10 Downfield Road, Clifton, Bristol.
126,746. Earpiece for acoustic receivers, provided with filling of sponge rubber for deadening sound. H. W. Metcalfe, The Claverings, Harbledown, Canterbury, Kent.
126,767. Fountain pen. O. S. Wolstenholme, 2 rue Rosetti, Alexandria, Egypt.

ISSUED JULY 23, 1919.

126,772. Demountable rim for tires. M. L. Scrimgeour (née Wakelin), 187 Brunsfield Place, Edinburgh.
126,792. Demountable rim for tires. Dunlop Rubber Co., and W. W. Hamill, 14 Regent street, Westminster.
126,823. Appliance for preventing movements of patient in bed. C. F. Smith, 77 Cannon street, London.
126,839. Rubber fastening band for pocket-books, etc. W. G. Hall, 36 Camomile street, London.
126,914. Joint-making packing. Schneider & Cie., 42 rue d'Anjou, Paris.
126,950. Demountable rims for tires. Baker Wheel & Rim Co., 140 South Dearborn street, assignees of E. K. Baker, same address—both of Chicago, Ill., U. S. A. (Not yet accepted.)
126,953. Strip material for wrapping tires, etc. E. H. Angier, Framingham, Mass., U. S. A. (Not yet accepted.)
126,967. Buoyant rubber garment for use at sea. A. V. Sims, 2 Rector street, New York City. (Not yet accepted.)
127,059. Oil hose. J. L. Hancock, Limited, and H. H. Rogers, 266 Goswell Road, London, and T. R. Cave-Brown-Cave and A. D. Ritchie, Royal Naval Air Station, Kingsnorth, Rochester, Kent.
127,124. Respirator. Sir W. G. Armstrong, Whitworth & Co., Elswick Works, Newcastle-on-Tyne, and H. S. Rayner, Deepdene, Broadway, Withington, Lancashire.
127,148. Puncture-preventing band for interlining pneumatic tires. F. Creassey, Upper Parliament Street, Nottingham.

Chemical Patents will be found on pages 695, 696. Machinery Patents on pages 698, 699.

ISSUED JULY 30, 1919.

127,410. Goggles mounted in sponge rubber eye-sockets, adapted for attaching gas-mask, etc. E. T. P. Goodyear, Colley Corner, Reigate Heith, Surrey.
127,476. Eraser formerly of laminated rubber strip, etc. W. W. Beaumont, 222 Strand, Westminster.
127,532. Fountain pen. O. B. Wade, Mayleigh, Petersham Road, Surrey.
127,562. Fountain pen. J. T. Anderson, Gundstrip, near Otterup, Funen, Denmark. (Not yet accepted.)
127,591. Surgical aspirator. H. S. White, Canadian Military Hospital, Orpington, Kent. (Not yet accepted.)

THE FRENCH REPUBLIC.

PATENTS ISSUED, WITH DATES OF APPLICATION.

489,605. (March 30, 1918.) Improvements in electric cables having several conducting strands, and process of manufacture. C. J. Beaver and E. O. Claremont.
489,807. (April 20, 1918.) Protective spectacles specially designed for aviation and auotmobiling. Société Chainat, Soulat & Cie.
490,999. (July 24, 1918.) Improvements in self-filling fountain pens. The Conklin Pen Manufacturing Co.
491,101. (July 31, 1918.) Hose coupling. Société Flury & Schwaller.
491,102. (July 31, 1918.) Improvements in tires for vehicle wheels. E. Taylor.
491,219. (August 30, 1918.) Respiratory mask to protect against harmful and asphyxiating gases. F. J. Peyres.
491,239. (August 12, 1918.) Resilient tire. K., F. & C. Tire & Rubber Corp.
491,291. (September 4, 1917.) Removable rubber heel. A. H. J. Pesron.
491,292. (September 5, 1917.) Halter-mask for horses. T. A. Clayton.
491,316. (August 21, 1918.) Improved pneumatic tube and process of manufacture. I. B. Jeffries.
491,375. (July 9, 1918.) Fountain pen and clip. The Conklin Pen Manufacturing Co.
491,403. (August 21, 1918.) Improvement in metallic wheel rims, insuring rapid mounting of pneumatic tires. P. Momigliano.
491,404. (August 21, 1918.) Metallic rim for automobile wheels. G. A. Merino.
491,443. (August 24, 1918.) Manometer. A. Schrader's Son, Inc.
491,474. (August 27, 1918.) Douche bag. G. Whittaker.
491,498. (August 28, 1918.) Improvement in fountain pens. T. Cahalan.
491,499. (August 28, 1918.) Life-saving suit. S. P. Edwards.
491,503. (August 28, 1918.) Resilient tire. J. M. Avery.
491,510. (August 29, 1918.) Improvements in resilient tires. S. Grossman.
491,602. (September 5, 1918.) Resilient tire. H. C. Babel.
491,607. (September 5, 1918.) Hose coupling. Eureka Fire Hose Manufacturing Co.
491,635. (September 9, 1918.) Tire valve. C. N. Duval and B. E. Vergé.

NEW ZEALAND.

ISSUED JUNE 26, 1919.

40,623. Table having rubber surface and clamping bar faced with rubber, for use in removing threads from animal intestines.

TRADE MARKS.

THE UNITED STATES.

NO. 109,653. Conventionalized representation of automobile headlight glass bearing the words RAINPROOF AUTO-COAT—raincoats, etc. The Miller Cloak Co., Cleveland, O.
110,165. Representation of an eagle with spread wings standing on a coil of hose, dividing the word EUREKA—rubber fabric or rubber and fabric hose. Eureka Fire Hose Manufacturing Co., New York City.
113,621. The word SNAPFIL—fountain pens. General Manufacturing Co., Sioux City, Ia.
115,980. A blue ribbon or band running along the center of belting made of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
117,082. The word FIREFOAM—fire-extinguishing compounds. Foamite Firefoam Co., New York City.
117,400. Representation of a circle surrounding a child's head and the words TOOTSIE TOES so arranged that the capital T starts both words—children's rubbers, etc.
117,426. The word "DIRECTOR"—golf balls. The Worthington Ball Co., Elyria, O.
117,427. The word "MYSTERY"—golf balls. The Worthington Ball Co., Elyria, O.
117,532. The word EXCELLFREX—powdered chemical material for accelerating vulcanization of rubber, etc. Katzenbach & Bullock Co., New York City.
118,663. The words WING FOOT—rubber or composition heels and soles. The Goodyear Tire & Rubber Co., Akron, O.

THE DOMINION OF CANADA.

24,556. The word UNIVERSAL—erasers, pens, rubber bands, etc. American Lead Pencil Co., New York City, U. S. A.
24,613. Representation of a circle bearing a rope, having in the upper part the word MINER'S, in the center the words TRI-COLOR, and in the lower part the letter M—rubber footwear, clothing, heels and soles, rubberized fabrics, belting, hose, tires, insulating material, and rubber cement. The Miner Rubber Co., Limited, Montreal, Que.
24,635. A black background with the word RAYNSTER placed above the Dominion Symbol and the words MADE IN CANADA below—rubber coats and caps. Canadian Consolidated Rubber Co., Limited, Montreal, Que.
24,637. The words DIAMOND GRIP and the representation of a diamond and a heel—rubber heels. Robert E. Miller, Inc., New York City, U. S. A.
24,752. The word NAUGAHYDE—articles containing rubber. Canadian Consolidated Rubber Co., Limited, Montreal, Que.
24,781. The word KERATOL—artificial leather. The Keratol Co., Newark, N. J., U. S. A.
24,796. The word RADIO—pneumatic tires. Van der Linde Rubber Co., Limited, Toronto, Ont.
24,797. The representation of a circle bearing the semblance of a rope having in the upper part the word MINER'S, in the center part the word INVINCIBLE, and in the lower part a design resembling the letter M—rubber footwear and clothing, rubberized cloth, belting, hose, insulating material, tires, and rubber cement. The Miner Rubber Co., Limited, Montreal, Que.

THE FRENCH REPUBLIC.

26,323. The word DURATEX—imitation leather. The Duratex Co., 768 Frelinghuysen avenue, Newark, N. J., U. S. A.
26,330. The words Mo-Jo—chewing and medicatel gum. The Chicle Products Co., Mount Pleasant, Newark, N. J., U. S. A.
26,331. Representation of tiger's head holding rectangle in open mouth—chewing gum. The Chicle Products Co., Mount Pleasant, Newark, N. J., U. S. A.
26,342. The words "PARAKNIT" TRADEMARK—corsets, girdles, garters, abdominal bandages, etc. Treo Co., 160 Fifth avenue, New York City, U. S. A.
26,288. The words HALF-SOLE TIRE—rubber tires. The Gates Rubber Co., 999 South Broadway, Denver, Colo., U. S. A.

NEW ZEALAND.

15,438. The word TESTRESTOS—asbestos textiles not included in classes other than No. 50. American Asbestos Co., Norristown, Pa., U. S. A.
15,458. The word VAC—articles of clothing in class No. 38. Mishawaka Woolen Manufacturing Co., Hill and Water streets, Mishawaka, Ind., U. S. A.

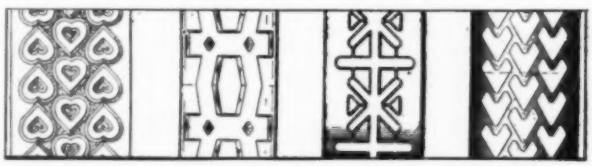
DESIGNS.

THE UNITED STATES.

NO. 53,494. Tire. Patented July 8, 1919. Term 14 years. E. O. Fritch, assignor to Hood Rubber Co.—both of Watertown, Mass.
53,498. Tire. Patented July 8, 1919. Term 14 years. M. Greenspan, Chicago, Ill.
53,511. Tire. Patented July 8, 1919. Term 3½ years. A. L. Weeks, Gadsden, Ala.

53,494. 53,652. 53,511. 53,555. 53,553.

53,553. Tire. Patented July 15, 1919. Term 14 years. G. S. Anderson, Akron, O.
53,555. Tire. Patented July 15, 1919. Term 7 years. C. R. Baker, Akron, O.
53,589. Tire. Patented July 15, 1919. Term 7 years. B. W. Hartley, Halleybury, Ont.
53,608. Tire. Patented July 15, 1919. Term 3½ years. S. Reele, Houston, Tex.
53,625. Rubber heel. Patented July 15, 1919. Term 14 years. C. Wright, assignor to Racine Auto Tire Co.—both of Racine, Wis.



53,498. 53,589. 53,608. 53,661.

53,635. Horse-shoe pad. Patented July 22, 1919. Term 14 years. W. J. Kent, Brooklyn, N. Y., assignor to Revere Rubber Co., Providence, R. I.
53,639. Automobile wheel. Patented July 22, 1919. Term 7 years. W. J. P. Moore, New York City.
53,653. Tire. Patented July 29, 1919. Term 3½ years. W. B. Buckley, Washington, D. C.
53,661. Tire. Patented July 29, 1919. Term 14 years. J. H. Kohsick, Kenmore, assignor to The Oldfield Tire Co., Cleveland—both in Ohio.

THE DOMINION OF CANADA.

4,608. India rubber rubber. Patented June 6, 1919. Russel Sutherland Smart, Ottawa, Ont.

ROBERTSON M. R.

This new grade of mineral rubber is manufactured by a patented process in which direct heating is eliminated, thus avoiding all possibility of carbonizing the crude materials. The resulting product is suitable for use in manufacturing high-grade rubber product where mineral rubber has not usually been accepted as a desirable ingredient. The usual advantages of mineral rubber are said to be exceeded in the new material.

Review of the Crude Rubber Market.

NEW YORK.

DURING AUGUST the crude rubber market advanced slightly, but steadily. Prices were very firm, with buyers quite eager and sellers holding back. There is plenty of rubber on hand, waiting for better market conditions. Manufacturers appear to be well supplied; usually they lay in their stocks in August, b utthis year many bought earlier; some are trying to buy now. Trading is still hampered by the delays with the cables to Europe and the East, as well as to Brazil.

While there was some dealing in futures a month ago, it is now difficult to do any business. The fall in sterling exchange was expected to lower the price of crude rubber, but it had, if any, a contrary effect. The Singapore market is much higher than New York, but it is difficult to do business direct, owing to the cable troubles. In Brazil there is little change. The Pará market is quiet, with prices unchanged from the beginning of the month.

The following quotations indicate the price movement of plantation and South American rubber:

PLANTATION HEVEA. August 1, first latex crêpe, spot 41½ cents; September, 42½ cents; October-December, 43½ cents, and January-June, 1920, 45½ cents.

August 25, first latex crêpe, spot 45 to 45½ cents; October-December, 45½ cents, and January-June, 1920, 47 cents.

August 1, ribbed smoked sheets, spot 40½ cents; September, 41½ cents; October-December, 42½ cents; January-June, 1920, 44½ cents, and January-December, 1920, 45½ cents.

August 25, ribbed smoked sheets, spot 43½ cents; September, 44 cents; October-December, 44½ cents; January-June, 1920, 46 cents.

August 1, No. 1 amber crêpe, spot 38½ cents; August-December, 38 cents; January-June, 1920, 40 cents.

August 25, No. 1 amber crêpe, 41½ cents; August-December, 41½ and 42 cents; January-June, 1920, 43½ cents.

August 1, clean thin brown crêpe, spot 35½ cents; August-December, 36½ cents; January-June, 1920, 37½ cents.

August 25, clean thin brown crêpe, spot 38 cents; August-December, 38½ cents; January-June, 1920, 40 cents.

August 1, No. 1 roll brown crêpe, spot 30 cents; August-December, 30 cents; January-June, 1920, 31 cents.

August 25, No. 1 roll brown crêpe, spot 32 cents; October-December, 32½ cents; January-June, 33 cents.

SOUTH AMERICAN PARÁ AND CAUCHOS. Spot prices were: August 1, upriver fine, 54¾ cents; islands fine, 47½ cents; upriver coarse, 32 cents; island coarse, 20¾ cents; Cametá coarse, 21¾ cents; caucho ball upper, 32 cents. August 25, upriver fine, 54½ cents; islands fine, 47½ cents; upriver coarse, 32 cents; islands coarse, 21½ cents; Cametá coarse, 21½ and 22 cents; caucho ball, 31½ cents.

NEW YORK QUOTATIONS.

Following are the New York spot quotations, for one year ago, one month ago and on August 26, the current date:

	September 1, 1918. Free Rubber.	August 1, 1919.	August 26, 1919.
PLANTATION HEVEA—			
First latex crêpe	63 @	41 @41½	45½@
Amber crêpe No. 1	60 @	38 @	41½@
Amber crêpe No. 2	60 @	37 @	40½@
Amber crêpe No. 3	58 @	36 @	39½@
Amber crêpe No. 4	57 @	35 @	38½@
Brown crêpe, thick and thin clean	60 @	35 @	38½@
Brown crêpe, thin specky	50 @	32 @	36½@
Brown crêpe, rolled	44 @	29 @29½	32 @
Smoked sheet, ribbed, standard quality	62 @	40 @	44 @
Smoked sheets, plain, standard quality	61 @	39 @	41 @
Unsmoked sheet, standard quality	60 @	38 @	39 @
Colombo scrap No. 1	46 @	32 @	33 @
Colombo scrap No. 2	44 @	30 @	31 @
EAST INDIAN—			
Assam crêpe	58 @60	*58 @	*58 @
Assam onions	54 @	@	@
Penang block scrap	37 @	*40 @	*40 @
PONTIANAK—			
Banjermassin	15 @	13¼ @	10¾ @
Palembang	16 @	14½ @	11¾ @12
Pressed block	25 @	21½ @	21 @
Sarawak	14 @	11 @	9¾ @
SOUTH AMERICAN—			
PARAS—			
Upriver fine	68 @	54½ @55	54½ @
Upriver medium	63 @	*52 @	51½ @
Upriver coarse	40 @	32 @	31½ @
Upriver weak, fine	56 @	39 @	40 @
Islands, fine	59 @	48 @	48 @
Islands, medium	52 @	*44 @	44 @45
Islands, coarse	27 @	*21 @	21 @
Madeira, fine	@	55½ @	55 @
Acre Bolivian, fine	@	55 @	54½ @55
Cametá, coarse	28 @	*22 @	21½ @
Peruvian fine	@	53 @	53 @
Tapajos fine	@	53½ @	53 @
CAUCHO—			
Lower caucho ball	36 @	29 @	29 @
Upriver caucho ball	40 @	48 @	31 @
MANICOBAS—			
Ceara negro heads	37 @	*34 @	*34 @
Ceara scrap	37 @	*29 @	*29 @
Manicoba (basis 30% loss washing and drying)	36½ @	*32 @	*32 @
Mangabeira thin sheet	35 @	*38 @	*38 @
CENTRALS—			
Corinto scrap	39 @	31 @	31 @
Esmeralda sausage	39 @	31 @	31 @
Central scrap	39 @	31 @	31 @
Central scrap and strip	@	29 @	29½ @
Central wet sheet, 25%	@	20 @21	23 @
Guayule, 20% guarantee	35 @	25 @	25 @
Guayule, dry	48 @	35 @	35 @
AFRICANS—			
Niger flake, prime	28 @	@	@
Benguela, extra No. 1, 28%	33 @	24 @	*24 @
Benguela No. 2, 32½%	29 @	25 @	*25 @
Congo prime, black upper	48 @	35 @	34½ @
Congo prime, red upper	48 @	35 @	34 @35
Rio Nunez ball	55 @	@	@
Rio Nunez sheets and strings	@	@	@
Conakry niggers	55 @	@	@
Massai sheets and strings	55 @	@	@
GUTTA PERCHA—			
Gutta Siak	28 @	22 @	20 @23
Red Macassar	3.00 @	2.60 @	2.50 @2.60
BALATA—			
Block, Ciudad Bolivar	71 @	78 @	70 @74
Colombia	61 @	61 @62	56 @58
Panama	59 @	48 @	45 @48
Surinam sheet	95 @	93 @94	90 @92
amber	97 @	94 @95	92 @94

* Nominal.

RECLAIMED RUBBER.

The market is characterized by continued dullness. Purchasing is limited to routine orders, with no effort at anticipating future demands. There is slight activity in reclaims for insulation work and a fairly good market for the stock reclaims.

NEW YORK QUOTATIONS.

AUGUST 25, 1919.

Subject to change without notice.

Standard reclaims:			
Floating	lb.	.30 @	.35
Friction	lb.	.25 @	.35
Mechanical	lb.	.11 @	.12
Red	lb.	.20 @	.25
Shoe	lb.	.15 @	.15½
Tires, auto	lb.	.15 @	.16¾
truck	lb.	.11½ @	.12½
White	lb.	.24 @	.25

COMPARATIVE HIGH AND LOW SPOT RUBBER PRICES.

August.

PLANTATIONS.	1919.[1]	1918.	1917.
First latex crêpe	$0.45 @ $0.41½	$0.63 @ $0.63	$0.65½ @ $0.56½
Smoked sheet ribbed	.44 @ .39¼	.62 @ .62	.65½ @ .64½
PARAS.			
Upriver, fine	.55 @ .54	.68 @ .68	.70 @ .68¼
Upriver, coarse	.32 @ .31½	.40 @ .40	.48½ @ .47½
Islands, fine	.47½ @ .47½	.59 @ .59	.61½ @ .59½
Islands, coarse	.21½ @ .21	.27 @ .27	.30 @ .29¼
Cameta	.21½ @ .21¼	.28 @ .28	.31½ @ .30¼

[1] Figured only to August 26.

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers, broker in crude rubber and commercial paper, No. 68 William street, New York City, advises as follows:

"During the first part of August the demand for paper was very light and mostly from out-of-town banks, the best rubber names going at 5½ to 6 per cent, and those not so well known 6 to 6½ per cent, but the latter part of the month rates eased a little to about 5½ to 5¾ per cent and 6 to 6½ per cent, respectively."

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [July 10, 1919]:

Notwithstanding advices of declining values in London and New York, the rubber auction opened yesterday to a firm market. There was an unusually large number of buyers in the market, and keen competition was witnessed at intervals throughout the sale.

Ribbed smoked sheet fully maintained last week's value of 67½ cents and 68/69 cents was paid for a few really fine lots. Fine pale crêpe was in moderate demand and sold up to 67 cents (3 lots sold at 67½ cents) showing no change on the week. Clean brown and dark crêpes were a shade weaker, while Barky crêpes advanced two cents. The quantity cataloged was 907 tons, of which 587 tons were sold.

The following is the course of values:

	In Singapore, per Pound,[1]	Sterling Equivalent per Pound in London.
Sheet, fine ribbed smoked	65c @ 67½c	1/ 8⅞ @ 1/9¼
Sheet, good ribbed smoked	58 @ 64	1/ 6⅞ @ 1/8⅝
Crêpe, fine pale	65 @ 67	1/ 9⅛ @ 1/9⅜
Crêpe, good pale	53 @ 63½	1/ 5¾ @ 1/8⅜
Crêpe, fine brown	50 @ 54½	1/ 4⅞ @ 1/6⅛
Crêpe, good brown	45 @ 50	1/ 3½ @ 1/4⅞
Crêpe, dark	40 @ 46	1/ 2 @ 1/3⅜
Crêpe, bark	30 @ 42	/11¼ @ 1/2⅛

[1] Quoted in S. S. Currency—$1 = $0.567.

BATAVIA RUBBER MARKET.

HERMANS, MARSMAN & CO., Batavia, report [May 15-June 15, 1919]:

During the month under review the market was very quiet and buyers showed only very little interest in almost all qualities. The quotations received from the foreign markets showed a downward tendency. The markets closed with the following quotations:

	In Batavia Per ½-kilo.[1] Guilders.	Equivalent Per ½-kilo in U. S. Currency.
Fine pale crêpe	1.17	$0.468
Prime smoked sheet	1.18	.472
Fine pale crêpe, basis 75 per cent	1.06	.424
Off crepe	0.89@1.12	.356@.448

[1] Quoted per ½-kilo (1.1 lb.) in Dutch Indian guilders ($0.40).

FEDERATED MALAY STATES RUBBER EXPORTS.

An official report from Kuala Lumpur states that 7,094 tons of rubber were exported from the Federated Malay States in the month of June, as compared with 7,308 tons in May and 5,161 tons in the corresponding month last year. The total export for six months of the present year was 50,717 tons, against 40,557 tons in 1918 and 39,476 tons in 1917. Appended are the comparative statistics:

	1917.	1918.	1919.
January ..... *tons*	5,995	7,588	7,163
February	7,250	6,820	10,809
March	7,088	7,709	10,679
April	5,955	7,428	7,664
May	7,179	5,851	7,308
June	6,009	5,161	7,094
Totals	39,476	40,557	50,717

STRAITS SETTLEMENTS RUBBER EXPORTS.

An official report from Singapore states that 5,059 tons of rubber (of which 948 tons were transhipments), were exported from the Straits Settlements in the month of June, as compared with 15,845 tons in May and 6,515 tons in the corresponding month last year. The total export for six months of the present year was 82,725 tons, against 42,180 tons in 1918, and 39,516 tons in 1917. Appended are the comparative statistics:

	1917.	1918.	1919.
January ..... *tons*	3,562	4,302	14 404
February	6,495	2,334	15,661
March	8,299	8,858	20,908
April	6,103	6,584	10,848
May	6,282	13,587	15,845
June	8,775	6,515	5,059
Totals	39,516	42,180	82,725

CEYLON RUBBER IMPORTS AND EXPORTS.

IMPORTS.

	January 1 to July 7. 1918.	1919.
Crude rubber:		
From Straits Settlements ..... *pounds*	1,471,419	1,379,322
India	1,419,061	705,489
Burma and other countries	3,107	.....
Totals	2,893,587	2,084,811

EXPORTS.

Crude rubber:		
To United Kingdom ..... *pounds*	7,925,985	17,072,967
Belgium	.....	29,120
France	100,642	330,010
[1]Victoria	434,749	89,795
[2]New South Wales	213,614	91,700
United States	10,886,132	35,710,780
Canada and Newfoundland	4,804,976	260,016
India	2,279	2,313
Straits Settlements	.....	454
Japan	145,578	144,026
Totals	24,513,955	53,731,181

[1] These figures include cargoes for transshipment to New Zealand, other ports of Australia, and dependencies.

(*Compiled by the Ceylon Chamber of Commerce.*)

PLANTATION RUBBER EXPORTS FROM JAVA.

	April. 1918.	1919.	Four months Ended April 30. 1918.	1919.
To Holland ..... *kilos*	.....	.....	.....	120,000
England	.....	1,882,000	1,659,000	2,901,000
France	.....	.....	.....	176,000
United States	72,000	1,586,000	2,131,000	6,621,000
Canada	.....	16,000	.....	36,000
Singapore	1,325,000	594,000	1,702,000	1,985,000
Japan	16,000	53,000	254,000	178,000
Australia	.....	26,000	.....	143,000
Other countries	.....	.....	.....	11,000
Totals	1,413,000	4,157,000	5,746,000	12,171,000
Ports of origin:				
Batavia	738,000	1,887,000	3,083,000	5,920,000
Samarang	8,000	47,000	61,000	203,000
Soerabaya	667,000	2,001,000	2,600,000	5,463,000
Totals	1,413,000	3,935,000	5,744,000	11,586,000

	May. 1918.	1919.	Five months Ended May 31. 1918.	1919.
To Holland ..... *kilos*	.....	2,000	.....	122,000
England	.....	780,000	1,659,000	3,681,000
France	.....	.....	.....	176,000
United States	1,358,000	1,225,000	3,489,000	7,876,000
Canada	.....	.....	.....	36,000
Singapore	1,315,000	546,000	3,017,000	3,804,000
Japan	310,000	1,000	564,000	179,000
Australia	.....	.....	.....	143,000
Other countries	.....	.....	.....	11,000
Totals	2,983,000	2,584,000	8,729,000	16,028,000
Ports of origin:				
Batavia	1,347,000	1,678,000	4,431,000	7,598,000
Samarang	28,000	41,000	90,000	204,000
Soerabaya	1,607,000	865,000	4,208,000	6,328,000
Totals	2,982,000	2,584,000	8,729,000	14,130,000

PLANTATION RUBBER EXPORTS FROM MALAYA.

(These figures include the production of the Federated Malay States, but not of Ceylon.)

	January 1 to March 31. Singapore.	Malacca.	Port Swettenham.	Jan. 1 to Feb. 28, Penang.	Totals.
To United Kingdom ... *pounds*	12,561,200	.....	16,629,197	3,512,400	32,702,797
The Continent	6,507,200	.....	.....	.....	6,507,200
Japan	8,122,800	.....	.....	211,200	8,334,000
Ceylon	50,000	.....	844,024	.....	894,024
United States and Canada	90,528,400	.....	.....	2,052,400	92,580,800
Australia	88,000	.....	.....	.....	88,000
China (Hongkong)	.....	.....	.....	.....	.....
Other countries	64,800	.....	.....	.....	64,800
Totals	117,922,400	.....	17,473,221	5,776,000	141,171,631
For the year 1918	225,100,000	837,600	.....	12,479,200	238,416,800
For the year 1917	177,901,200	15,113,200	.....	23,402,000	216,416,400
For the year 1916	135,535,954	7,167,346	3,660,840	30 643,565	177,007,705
For the year 1915	86,067,657	7,898,984	821,445	28,580,663	123,368,749
For the year 1914	43,534.177	5,218,379	2,052,620	21,912,567	72,717,743

(*Compiled by Barlow & Co., Singapore.*)

CRUDE RUBBER ARRIVALS AT ATLANTIC AND PACIFIC PORTS AS STATED BY SHIPS' MANIFESTS.

PARAS AND CAUCHO AT NEW YORK.

	Pounds.					
	Fine.	Medium.	Coarse.	Caucho.	Mixed Rubber.	Total Pounds.
AUGUST 5. By the S. S. *Ardan*, from Para, Manáos, Iquitos, and Ceara.						
Poel & Kelly	100,941	15,876	27,572	7,984	552[1]	152,925
General Rubber Co.	114,240	.....	6,720	.....	.....	120,960
Meyer & Brown, Inc.	103,000[2]	.....	107,500	.....	.....	210,500
H. A. Astlett & Co.	202,000	.....	62,000	133,000	115,000[1]	512,000
Fred Stern & Co.	.....	.....	22,400[3]	.....	.....	22,400
Gaston, Williams & Wigmore	10,890	968	2,992	3,146	.....	17,996
Paul Bertuch	3,454	220	.....	.....	.....	3,674
Raw Products Co.	.....	.....	968	2,486	.....	3,454
F. R. Henderson	.....	.....	198	.....	.....	198
Aldens' Successors	.....	330	330	.....	.....	660
Winter, Ross & Co.	44	88	66	1,980	.....	2,178
E. T. Greiner & Co.	2,288	154	2,970	814	.....	6,226
G. Amsinck & Co.	176	66	374	330	.....	946
Wm. Schall & Co.	2,464[4]	.....	.....	.....	.....	495,528
G. Amsinck & Co., Inc.	1,590[4]	.....	.....	.....	.....	126,500
AUGUST 12. By the S. S. *Tungus*, from Pernambuco.						
Lawrence Johnson Co.	.....	.....	.....	.....	10[6]	900
AUGUST 18. By the S. S. *Mariana*, from Buenos Aires.						
Havemeyer Harding Co.	.....	.....	130[5]	.....	.....	11,700
Various	2,464	3,036	2,530	10,340	.....	18,370
Various[5]	.....	.....	.....	.....	684[5]	60,283

[1]Cametá.
[2]Including medium.
[3]Islands coarse.
[4]Packages.
[5]Cases, bales and bags.
[6]Bags.

PLANTATIONS.

(*Figured 180 pounds net to the bale or case.*)

	Shipment from:	Shipped to:	Pounds.	Totals.
JULY 16. By the S. S. *Empress of Japan*, at New York.				
William H. Stiles & Co.	Singapore	New York	68,400	
Edward Maurer Co., Inc.	Singapore	New York	53,820	
				122,220
JULY 21. By the S. S. *Maneric*, at New York.				
General Rubber Co.	Calcutta	New York	112,000	
Chas. T. Wilson Co., Inc.	Calcutta	New York	44,820	
Meyer & Brown, Inc.	Colombo	New York	224,000	
The Goodyear Tire & Rubber Co.	Calcutta	Akron, O.	135,720	
Poel & Kelly	Calcutta	New York	57,600	
Rubber Trading Co.	Calcutta	New York	22,400	
Various			38,000	
				634,540
JULY 23. By the S. S. *Slavic Prince*, at New York.				
F. R. Henderson & Co.	Singapore	New York	927,000	
F. R. Henderson & Co.	Penang	New York	170,100	
The B. F. Goodrich Co.	Singapore	Akron, O.	916,380	
The B. F. Goodrich Co.	Penang	Akron, O.	465,920	
The B. F. Goodrich Co.	Malacca	Akron, O.	119,700	
J. T. Johnstone & Co., Inc.	Singapore	New York	686,880	
J. T. Johnstone & Co., Inc.	Belawan	New York	40,680	
General Rubber Co.	Singapore	New York	618,660	
United States Rubber Co.	Singapore	New York	396,360	
Chas. T. Wilson Co., Inc.	Singapore	New York	293,220	
Chas. T. Wilson Co., Inc.	Penang	New York	177,120	
William H. Stiles & Co.	Singapore	New York	227,520	
Rubber Trading Co.	Singapore	New York	273,280	
Firestone Tire & Rubber Co.	Singapore	Akron, O.	104,400	
W. G. Ryckman, Inc.	Singapore	New York	78,840	
Raw Products Co.	Singapore	New York	30,240	
Faultless Rubber Co.	Singapore	Ashland, O.	28,440	
L. Littlejohn & Co., Inc.	Singapore	New York	1,520,100	
Fred Stern & Co.	Singapore	New York	405,440	
Fred Stern & Co.	Belawan	New York		
Poel & Kelly	Singapore	New York	379,080	
Hadden & Co.	Singapore	New York	346,320	
United Malaysian Rubber Co., Ltd.	Singapore	New York	252,900	
Curry, McPhillips & Co.	Singapore	New York	230,400	
The Goodyear Tire & Rubber Co.	Singapore	Akron, O.	224,460	
The Goodyear Tire & Rubber Co.	Belawan	Akron, O.	101,340	
Winter, Ross & Co.	Singapore	New York	195,660	
Federal Products Co.	Singapore	New York	193,680	
Jaeger & Co., Ltd.	Singapore	New York	188,900	
Rubber Importers & Dealers' Co., Inc.	Singapore	New York	131,400	
Thos. A. Desmond & Co.	Singapore	New York	129,960	
Edward Maurer Co., Inc.	Singapore	New York	128,880	
Gaston, Williams & Wigmore	Singapore	New York	104,220	
Paterson, Simmons & Co.	Singapore	New York	99,360	
East Asiatic Co., Inc.	Singapore	New York	61,200	
Frank Waterhouse & Co.	Singapore	New York	59,040	
Swinehart Tire & Rubber Co.	Singapore	Akron, O.	42,840	
Everett, Heaney & Co.	Singapore	New York	37,260	
Meyer & Brown, Inc.	Singapore	New York	33,600	
Robinson & Co.	Singapore	New York	28,620	
Vernon Metal & Produce Co.	Singapore	New York	24,480	
Far East Importing Co., Inc.	Singapore	New York	19,800	
H. P. Winter & Co.	Singapore	New York	18,540	
E. S. Kuh & Valk Co.	Singapore	New York	17,460	
Thornett & Fehr.	Belawan	New York	101,880	
Thornett & Fehr.	Singapore	New York	17,280	
Pacific Trading Corp. of America	Penang	New York	156,060	
Hood Rubber Co.	Penang	Watertown	119,620	
Aldens' Successors, Ltd.	Penang	New York	81,000	
W. R. Grace & Co.	Penang	New York	31,500	
W. R. Grace & Co.	Pt. Swet'ham	New York	28,980	
W. R. Grace & Co.	Belawan	New York	25,560	
Various	Singapore	New York	163,620	
Various	Pt. Swet'ham	New York	97,500	
				1,352,680
JULY 24. By the S. S. *Eurybates*, at New York.				
The B. F. Goodrich Co.	Singapore	Akron, O.	1,193,120	
The B. F. Goodrich Co.	Penang	Akron, O.	154,440	
The B. F. Goodrich Co.	Malacca	Akron, O.	19,780	
United States Rubber Co.	Singapore	New York	378,180	
Chas. H. Wilson Co., Inc.	Singapore	New York	115,020	
J. T. Johnstone & Co., Inc.	Singapore	New York	102,500	
F. R. Henderson & Co.	Singapore	New York	88,200	
Aldens' Successors, Ltd.	Singapore	New York	69,480	
William H. Stiles & Co.	Pt. Swet'ham	New York	58,860	
William H. Stiles & Co.	Singapore	New York	51,120	
William H. Stiles & Co.	Teluk Anson	New York	36,000	
William H. Stiles & Co.	Malacca	New York	18,720	
William H. Stiles & Co.	Port Dickson	New York	11,520	
Sweeney & Co., Inc.	Singapore	New York	27,720	
Rubber Trading Co.	Singapore	New York	22,400	
Hood Rubber Co.	Pt. Swet'ham	Watertown	2,340	
Meyer & Brown, Inc.	Singapore	New York	728,000	
L. Littlejohn & Co., Inc.	Singapore	New York	361,940	
L. Littlejohn & Co., Inc.	Penang	New York	39,600	
Fred Stern & Co.	Singapore	New York	284,480	
Jaeger & Co., Ltd.	Singapore	New York	250,380	
Hadden & Co.	Singapore	New York	184,680	
Poel & Kelly	Singapore	New York	345,269	
The Goodyear Tire & Rubber Co.	Penang	Akron, O.	173,340	
The Goodyear Tire & Rubber Co.	Delo	Akron, O.	101,700	
The Goodyear Tire & Rubber Co.	Pt. Swet'ham	Akron, O.	33,660	
Edward Maurer Co., Inc.	Singapore	New York	126,000	
Federal Products Co.	Singapore	New York	53,820	
United Malaysian Rubber Co., Ltd.	Singapore	New York	50,760	
Vernon Metal & Produce Co.	Singapore	New York	50,400	
Paterson, Simmons & Co.	Singapore	New York	50,400	
Winter, Ross & Co.	Singapore	New York	44,640	
Winter, Ross & Co.	Penang	New York	28,840	
Winter, Ross & Co.	Port Dickson	New York	28,800	
Winter, Ross & Co.	Malacca	New York	15,840	
Winter, Ross & Co.	Teluk Anson	New York	3,600	
Swinehart Tire & Rubber Co.	Pt. Swet'ham	Akron	41,400	
A. G. De Sherbinin & Co.	Singapore	New York	40,320	
Thos. A. Desmond & Co.	Singapore	New York	30,320	
East Asiatic Co., Inc.	Singapore	New York	27,000	
Mexican Crude Rubber Co.	Pt. Swet'ham	New York	19,800	
National Ammonia Co.	Pt. Swet'ham	New York	9,180	
Various	Pt. Swet'ham	New York	84,060	
Various	Singapore	New York	66,620	
				5,624,249
JULY 24. By the S. S. *Korea Maru*, via Hongkong, at San Francisco.				
Various	Penang	San Francisco	34,020	34,020
JULY 28. By the S. S. *Independence*, at New York.				
Curry, McPhillips & Co.	London	New York	153,900	
Various	London	New York	169,500	
				323,460
JULY 29. By the S. S. *Empress of Russia*, at Vancouver.				
Federal Products Co.	Singapore	New York	117,000	
Meyer & Brown, Inc.	Singapore	Vancouver	56,000	
C. C. Trevanion & Co.	Colombo	Seattle	12,600	
Various	Colombo	Seattle	16,200	
				201,800
JULY 29. By the S. S. *Mexico Maru*, from Yokohama, at Seattle and Tacoma.[1]				
F. R. Henderson & Co.	Singapore	New York	683,640	
The Goodyear Tire & Rubber Co., Ltd.	Singapore	New Toronto	87,840	
Dunlop Tire & Rubber Goods Co., Ltd.	Kobe	Tacoma	7,280	
				778,760

[1]Ex *Osaka Shosen Kaisha*.

	Shipped from:	Shipped to:	Pounds.	Totals.
AUGUST 4. By the S. S. *Celtic Prince*, at New York.				
The B. F. Goodrich Co..	Singapore	Akron, O.	520,020	
The B. F. Goodrich Co..	Malacca	Akron, O.	299,160	
J. T. Johnstone & Co., Inc.	Singapore	New York	294,800	
Aldens' Successors, Ltd.	Malacca	New York	305,140	
Aldens' Successors, Ltd.	Singapore	New York	224,640	
Rubber Trading Co....	Singapore	New York	215,040	
W. G. Ryckman, Inc...	Singapore	New York	115,200	
William H. Stiles & Co.	Malacca	New York	124,200	
William H. Stiles & Co.	Singapore	New York	110,060	
Chas. T. Wilson Co., Inc.	Singapore	New York	107,460	
Hood Rubber Co.....	Singapore	Watertown	101,280	
F. R. Henderson & Co..	Singapore	New York	95,634	
F. R. Henderson & Co..	Malacca	New York	61,200	
Pacific Trading Corp. of America	Malacca	New York	66,240	
L. Littlejohn & Co., Inc.	Singapore	New York	1,174,140	
L. Littlejohn & Co., Inc.	Malacca	New York	57,420	
Fred Stern & Co.....	Singapore	New York	752,640	
Poel & Kelly.....	Shanghai	New York	545,924	
Meyer & Brown, Inc...	Singapore	New York	425,609	
United Malaysian Rubber Co., Ltd.	Singapore	New York	216,720	
Thos. A. Desmond & Co.	Singapore	New York	214,200	
Curry, McPhillips & Co.	Singapore	New York	190,800	
East Asiatic Co., Inc...	Singapore	New York	149,400	
Federal Products Co....	Singapore	New York	124,380	
Iaeger & Co., Ltd.....	Singapore	New York	118,720	
Rubber Importers & Dealers' Co., Inc.	Singapore	New York	116,820	
The Goodyear Tire & Rubber Co.	Singapore	Akron, O.	114,840	
The Goodyear Tire & Rubber Co.	Belawan	Akron, O.	81,900	
Paterson, Simmons & Co.	Singapore	New York	102,060	
Vernon Metal & Produce Co.	Singapore	New York	101,060	
Robinson & Co.....	Singapore	New York	89,640	
Edward Maurer Co., Inc.	Singapore	New York	82,980	
Far East Importing Co.	Singapore	New York	47,700	
Gaston, Williams & Wigmore	Singapore	New York	45,720	
Weiss & Co.....	Malacca	New York	29,700	
Weiss & Co.....	Singapore	New York	19,800	
C. C. Trevanion & Co...	Malacca	Seattle	21,240	
W. R. Grace & Co.....	Malacca	New York	13,500	
Various	Singapore	New York	680,040	
				8,157,018
AUGUST 6. By the S. S. *Malancha*, at New York.				
H. A. Forbes & Co.....	London	New York	160,200	
F. R. Downing & Co....	London	New York	95,940	
				256,140
AUGUST 6. By the S. S. *Choyo Maru*, at San Francisco.				
Firestone Tire & Rubber Co.	Singapore	Akron	600,840	
The B. F. Goodrich Co...	Singapore	Akron	184,860	
General Rubber Co.....	Singapore	New York	112,000	
William H. Stiles & Co..	Singapore	New York	51,840	
Raw Products Co.....	Singapore	San Francisco	49,140	
Rubber Trading Co.....	Singapore	New York	44,800	
F. R. Henderson & Co...	Singapore	New York	41,400	
Poel & Kelly.....	Singapore	New York	296,600	
Thos. A. Deamond & Co.	Singapore	New York	243,360	
Fred Stern & Co.....	Singapore	New York	217,280	
United Malaysian Rubber Co., Ltd.	Singapore	New York	185,920	
Vernon Metal & Produce Co.	Singapore	San Francisco	142,380	
L. Littlejohn & Co., Inc.	Singapore	San Francisco	50,760	
Meyer & Brown, Inc....	Singapore	San Francisco	112,000	
A. C. Fox & Co.....	Singapore	New York	12,240	
Kaufmann Rubber Co...	Singapore	Kitchener, Ont	11,800	
Various	Singapore	N.Y. and Bos.	401,400	
				2,758,620
AUGUST 8. By the S. S. *Kathlamba*, at New York.				
Meyer & Brown, Inc....	Colombo	New York	121,000	
Poel & Kelly.....	Colombo	New York	59,532	
Fred Stern & Co.....	Colombo	New York	58,240	
The Rubber Ass'n of America	Colombo	New York	205,007	
Various	Colombo	New York	5,400	
				449,179
AUGUST 12. By the S. S. *Takiwa Maru*, at New York.				
Rubber Trading Co....	Singapore	New York	112,000	
Poel & Kelly.....	Singapore	New York	89,600	
Various	Singapore	New York	9,540	
				211,140
AUGUST 13. By the S. S. *Mississippi*, at New York.				
Poel & Kelly.....	London	New York	111,000	111,000
AUGUST 13. By the S. S. *Bardic*, at New York.				
Henderson, Forbes & Co.	London	New York	14,580	
Various	London	New York	289,440	304,020
AUGUST 14. By the S. S. *Francisco* at New York.				
Curry, McPhillips & Co..	Hull	New York	10,440	10,440
AUGUST 14. By the S. S. *Madawaska*, at New York.				
Meyer & Brown, Inc....	Colombo	New York	309,100	
L. Littlejohn & Co., Inc..	Colombo	New York	25,200	
C. C. Trevanion & Co..	Colombo	New York	12,780	
Thos. A. Desmond & Co.	Colombo	New York	5,760	
Various	Colombo	New York	23,220	
				376,060
AUGUST 14. By the S. S. *Tenzan Maru*, at New York.				
J. T. Johnstone & Co., Inc.	Colombo	Watertown	74,920	
Hood Rubber Co.....	Colombo	New York	11,800	
L. Littlejohn & Co., Inc.	Colombo	New York	400,320	
Meyer & Brown, Inc....	Colombo	New York	224,000	
C. C. Trevanion & Co...	Colombo	New York	40,320	
Poel & Kelly.....	Colombo	New York	33,600	
Fred Stern & Co.....	Colombo	New York	22,400	
Various	Colombo	New York	57,600	
				864,960
AUGUST 18. By the S. S. *Protesilaus*, from Yokohama, at Seattle.				
Rubber Trading Co.....	Hongkong	New York	144,000	
William H. Stiles & Co..	Hongkong	New York	93,960	
J. T. Johnstone & Co., Inc.	Manila	Seattle	62,500	
Charles T. Wilson Co., Inc.	Sts. Settlem'ts.	Seattle	2,880	
L. Littlejohn & Co., Inc.	Hongkong	New York	263,160	
The Goodyear Tire & Rubber Co., Ltd.....	Hongkong	Vancouver	246,780	
Edward Maurer Co., Inc.	Hongkong	Vancouver	19,800	
Various	Sts. Settlem'ts.	Seattle	40,320	
				873,400

BALATA.

JULY 21. By the S. S. *Panama*, at New York.				
	Cristobal	New York	1,963	1,963
JULY 26. By the S. S. *Independence*, at New York.				
Various	London	New York	2,850	2,850
AUGUST 1. By the S. S. *Matura*.				
Yglesias & Co., Inc.....	Trinidad	New York	7,050	
Middleton & Co.....	Trinidad	New York	4,500	
				11,550
AUGUST 4. By the S. S. *Frederik Hendrik*, at New York.				
Wm. Schall & Co.....	Cape Haitien	New York	7,800	7,800
AUGUST 11. By the S. S. *Guiana*, at New York.				
Middleton & Co.....	Demerara	New York	1,650	
Various	Demerara	New York	3,150	
				4,800
AUGUST 13. By the S. S. *Tropic*, at New York.				
Earl Bros.	Liverpool	New York	3,750	3,750
AUGUST 14. By the S. S. *Mayaro*, at New York.				
American Trading Co....	Trinidad	New York	50,100	
South & Central American Comm'l Co.	Trinidad	New York	14,400	
Yglesias & Co., Inc.....	Trinidad	New York	8,700	
Various	Demerara	New York	1,050	
				74,250
AUGUST 18. By the S. S. *Colon*, at New York.				
Isaac Brandon & Bros...	Panama City	New York	750	
Various	Balboa	New York	10,200	
				10,950

CENTRALS.

JULY 21. By the S. S. *Panama*, at New York.				
G. Amsinck & Co., Inc..	Cristobal	New York	900	
Various	Cristobal	New York	900	
				1,800
JULY 22. By the S. S. *Twines*, at New York.				
G. Amsinck & Co., Inc.	Cristobal	New York	676	676
JULY 24. By the S. S. *Carib*, at New York.				
Andean Trading Co....	Port Colombia	New York	3,700	3,700
AUGUST 1. By the S. S. *Matura*, at New York.				
G. Amsinck & Co., Inc..	Trinidad	New York	71,700	
Southern Sales Corporation	Trinidad	New York	3,600	
				75,300
AUGUST 11. By the S. S. *San Jacinto*, at New York.				
United States Rubber Export Co.	Puerto	New York	14,100	
Various	Puerto	New York	900	
				15,000
AUGUST 11. By the S. S. *Esparta*, from Costa Rica.				
Various	Port Limon	New York	3,900	3,900
AUGUST 12. By the S. S. *Alamo*, at New York.				
American Lead Co.....	Cartagena	New York	1,600	1,600
AUGUST 18. By the S. S. *Colon*, at New York.				
Isaac Brandon & Bros..	Panama City	New York	800	800

GUTTA PERCHA.

JULY 23. By the S. S. *Slavic Prince*, at New York.				
L. Littlejohn & Co., Inc.	Singapore	New York	35,400	35,400
JULY 24. By the S. S. *Eurybates*, at New York.				
L. Littlejohn & Co., Inc.	Singapore	New York	127,200	127,200
AUGUST 4. By the S. S. *Celtic Prince*, at New York.				
L. Littlejohn & Co., Inc.	Singapore	New York	3,600	3,600

GUTTA SIAK.

JULY 23, 1919. By the S. S. *Slavic Prince*, at New York.				
United Malaysian Rubber Co., Ltd.	Singapore	New York	183,000	
East Asiatic Co., Inc....	Singapore	New York	123,000	
				306,000
AUGUST 4. By the S. S. *Celtic Prince*, at New York.				
United Malaysian Rubber Co., Ltd.	Singapore	New York	60,000	60,000

	Shipped from:	Shipped to:	Pounds.	Totals.
GUTTAS.				
JULY 31. By the *Port Bowen*, at New York.				
Rubber Trading Co.	Liverpool	New York	13,500	13,500
AUGUST 12. By the S. S. *Takiwa Maru*, at New York.				
Various	Singapore	New York	1,500	1,500
MANICOBAS.				
JULY 14. By the S. S. *West Indian*, at New York.				
Adolph Hirsch & Co., Inc.	Bahia	New York	18,188	18,188
PONTIANAK.				
JULY 23. By the S. S. *Slavic Prince*, at New York.				
Firestone Tire & Rubber Co.	Singapore	Akron	71,400	
United Malaysian Rubber Co., Ltd.	Singapore	New York	394,800	466,200
Hadden & Co.	Singapore	New York	243,600	
L. Littlejohn & Co., Inc.	Singapore	New York	184,800	
Yaeger & Co., Ltd.	Singapore	New York	162,600	
Edward Boustead & Co.	Singapore	New York	59,700	650,700
JULY 24. By the S. S. *Lurybates*, at New York.				
Yaeger & Co., Ltd.	Singapore	New York	476,700	
United Malaysian Rubber Co., Ltd.	Singapore	New York	264,000	740,700
Kidder, Peabody & Co.	Singapore	New York	151,200	
Fred Stern & Co.	Singapore	New York	100,500	
Suguki & Co.	Singapore	New York	56,700	
J. Littlejohn & Co., Inc.	Singapore	New York	33,900	342,300
AUGUST 4. By the S. S. *Celtic Prince*, at New York.				
United Malaysian Rubber Co., Ltd.	Singapore	New York	167,700	
Thos. A. Desmond & Co.	Singapore	New York	118,800	
L. Littlejohn & Co., Inc.	Singapore	New York	107,700	394,200
AUGUST 6. By the S. S. *Choyo Maru*, at San Francisco.				
Yaeger & Co.	Singapore	New York	283,500	
J. Littlejohn & Co., Inc.	Singapore	Seattle	21,300	
A. C. Fox & Co.	Singapore	Seattle	12,240	317,040
AUGUST 12. By the S. S. *Takiwa Maru*, at New York.				
G. Kawahara Co.	Singapore	New York	138,900	
L. Littlejohn & Co., Inc.	Singapore	New York	96,600	
Pacific Trading Corp. of America	Singapore	New York	59,700	295,200

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	April. 1918. Pounds.	1918. Value.	1919. Pounds.	1919. Value.
UNMANUFACTURED—*free:*				
Rubber, gutta percha, etc.:				
From United Kingdom	.....	.....	69,454	$20,053
United States	945,805	$456,354	307,854	131,662
British East Indies:				
Ceylon	.....	.....	44,709	16,095
India	41,902	22,731	.....	.....
Straits Settlements	642,669	299,577	509,277	202,392
Other countries	.....	.....	13,036	5,589
Totals	1,630,376	$778,662	944,330	$375,791
Rubber, recovered	398,038	$72,625	214,763	$35,074
Hard rubber sheets and rods	3,334	2,601	6,254	4,057
Hard rubber tubes	.....	2,281	.....	2,124
Rubber, powdered, and rubber or gutta percha scrap	256,277	30,020	183,562	20,051
Rubber thread, not covered	3,031	4,423	940	1,402
Rubber substitute	117,312	19,471	160,866	15,456
Totals	777,992	$131,421	566,385	$78,164
Balata	13	$15	19	$28
Chicle	459,994	$208,955	262,208	$172,950
MANUFACTURED—*dutiable:*				
Boots and shoes	.....	$20,839	.....	$13,813
Waterproofed clothing	.....	16,751	.....	15,851
Belting, hose, and packing	.....	43,369	.....	24,565
Gloves and hot-water bottles	.....	[1]	.....	6,566
Tires	.....	126,123	.....	87,464
Other manufactures	.....	131,077	.....	167,580
Totals	.....	$338,159	.....	$315,839

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS.

	April. 1918. Produce of Canada. Value.	1918. Reexports of Foreign Goods. Value.	1919. Produce of Canada. Value.	1919. Reexports of Foreign Goods. Value.
UNMANUFACTURED—				
Crude rubber	.....	.....	.....	$93,128
MANUFACTURED—				
Hose	$18,369	.....	$3,514	.....
Boots and shoes	123,811	.....	59,994	.....
Clothing	.....	.....	7,026	$139
Tires	103,629	$342	332,075	1,211
Waste	2,305	.....	34,490	.....
Belting	.....	.....	34	.....
All other—n. o. p.	3,650	713	7,763	2,080
Totals	$251,764	$1,055	$444,896	$3,430
Chicle	$123,505	.....	$36,473	.....

[1] Included in "Other manufactures."

UNITED STATES CRUDE RUBBER IMPORTS FOR 1919 (BY MONTHS).

1919.	Plantations.	Faras.	Africans.	Centrals.	Guayule.	Manicoba and Matto Grosso.	Totals for 1919.	Totals for 1918.
January ..*tons*	4,906	2,141	2	114	72	...	7,235	16,084
February	14,679	2,701	489	100	87	...	17,456	13,108
March	23,680	3,808	337	211	187	...	28,223	17,161
April	24,678	2,794	90	144	330	110	28,146	13,425
June	13,645	1,706	264	263	390	51	16,319	24,124
July	17,645	121	16	82	101	...	17,965	16,092

(Compiled by The Rubber Association of America, Inc.)

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	May. 1918. Pounds.	1918. Value.	1919. Pounds.	1919. Value.
UNMANUFACTURED—*free:*				
Rubber, gutta percha, etc.:				
From United Kingdom	20,244	$8,297	209,000	$101,623
United States	754,808	389,091	321,887	139,710
Brazil	.....	.....	46,305	25,352
British East Indies:				
Ceylon	.....	.....	315,104	162,226
Straits Settlements	746,140	334,216	940,289	455,575
Totals	1,521,192	$731,604	1,832,585	$884,495
Rubber, recovered	132,682	$27,571	179,771	$29,667
Hard rubber sheets and rods	5,250	4,113	110,138	65,808
Hard rubber tubes	.....	424	.....	2,212
Rubber, powdered, and rubber or gutta percha scrap	345,868	23,600	93,671	4,596
Rubber thread, not covered	4,668	6,855	6,761	9,972
Rubber substitute	83,459	12,850	28,562	4,145
Totals	971,927	$75,413	418,903	$116,400
Balata	19	$19	.....	.....
Chicle	548,243	$255,638	149,869	$98,724
MANUFACTURED—*dutiable:*				
Boots and shoes	.....	$18,956	.....	$16,592
Waterproofed clothing	.....	15,088	.....	19,672
Belting, hose and packing	.....	62,068	.....	30,590
Gloves and hot-water bottles	.....	[1]	.....	2,935
Tires	.....	176,253	.....	129,853
Other manufactures	.....	184,997	.....	186,604
Totals	.....	$457,362	.....	$386,246

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS.

	May. 1918. Produce of Canada. Value.	1918. Reexports of Foreign Goods. Value.	1919. Produce of Canada. Value.	1919. Reexports of Foreign Goods. Value.
UNMANUFACTURED—				
Crude and waste rubber	.....	.....	.....	$400
MANUFACTURED—				
Hose	$22,453	.....	$5,811	.....
Boots and shoes	139,141	$87	31,460	.....
Clothing	108	.....	3,568	$204
Tires	59,811	2,077	413,348	1,000
Waste	744	.....	63,020	.....
All other—n. o. p.	5,156	14,272	23,370	7,680
Total	$227,413	$16,436	$540,577	$8,884
Chicle	$138,767	.....	$73,049	.....

[1] Included in "Other manufactures."

EXPORTS OF INDIA RUBBER MANUFACTURES AND INSULATED WIRE AND CABLE FROM THE UNITED STATES BY COUNTRIES, DURING THE MONTH OF JUNE, 1919.

EXPORTED TO—	Belting Hose and Packing. Value.	Boots. Pairs.	Boots. Value.	Shoes. Pairs.	Shoes. Value.	Druggists' Rubber Sundries. Value.	Tires. Automobile, Value.	Tires. All Others. Value.	Insulated Wire and Cable. Value.	All Other Rubber Manufactures. Value.	Totals, Value.
EUROPE:											
Austria-Hungary	.....	.....	.....	.....	.....	.....	.....	.....	.....	$5,300	$5,300
Belgium	$2,001	.....	.....	2,230	$1,468	.....	$24,173	$40,373	$350	11,507	79,872
Denmark	11,374	.....	.....	37,595	25,479	$7,180	113,699	2,124	48,688	12,914	221,458
Finland	21,906	.....	.....	.....	.....	.....	.....	.....	.....	184	22,090
France	2,046	.....	.....	.....	.....	.....	192,628	24,270	33,185	64,889	317,018
Greece	.....	.....	.....	176	201	386	8,303	.....	.....	.....	8,890
Italy	.....	.....	.....	1,416	856	.....	414	.....	7,171	945	9,386
Netherlands	1,675	.....	.....	1,553	2,159	900	34,895	16,681	234,790	32,192	323,292
Norway	15,149	.....	.....	84,821	69,984	2,892	104,504	11,474	367,796	12,836	584,635
Portugal	1,291	1	$5	.....	.....	412	800	786	21,630	1,121	26,045
Roumania	3	.....	.....	.....	.....	.....	570	2,470	.....	141	3,184
Russia in Europe	.....	.....	.....	.....	.....	.....	.....	.....	.....	75	75
Serbia, Montenegro, etc	.....	.....	.....	.....	.....	.....	200	.....	.....	.....	200
Spain	36	.....	.....	25,647	17,194	4,613	104,160	2,562	16,866	23,557	168,988
Sweden	25,275	.....	.....	.....	.....	875	189,370	538	41,706	11,658	269,442
Switzerland	.....	.....	.....	7,392	3,536	.....	.....	.....	815	9,394	13,745
Turkey in Europe	.....	.....	.....	504	783	1,000	.....	.....	.....	.....	1,783
England	37,061	25,284	24,694	113,426	78,050	22,063	143,718	56,451	11,760	108,064	481,861
Scotland	571	.....	.....	.....	.....	52	.....	.....	.....	.....	623
Ireland	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,073	1,073
TOTALS, EUROPE	$118,388	25,285	$24,699	274,760	$199,710	$40,373	$917,434	$157,749	$784,757	$295,850	$2,538,960
NORTH AMERICA:											
Bermuda	.....	.....	.....	.....	.....	.....	.....	.....	$5	$184	$189
British Honduras	$92	.....	.....	753	$953	$10	$554	$183	7	23	1,822
Canada	41,583	3,871	$11,889	4,536	5,682	22,803	158,293	6,003	27,260	179,490	453,003
Costa Rica	1,028	.....	.....	.....	.....	54	678	104	51	402	2,317
Guatemala	1,116	.....	.....	412	381	93	3,423	169	80	2,606	7,868
Honduras	1,847	.....	.....	321	320	136	1,491	3	724	259	4,780
Nicaragua	504	.....	.....	120	84	964	1,857	.....	43	2,211	5,663
Panama	8,897	12	63	338	460	202	39,517	10,458	7,486	4,255	71,338
Salvador	1,422	.....	.....	.....	.....	154	4,668	.....	430	1,196	7,870
Mexico	$1,185	42	158	4,436	4,010	12,970	74,879	3,763	40,809	26,518	214,292
Miquelon, Langley, etc	61	1,462	4,614	66	192	.....	.....	.....	.....	.....	4,867
Newfoundland and Labrador	1,357	6,931	17,139	2,140	1,731	65	1,606	364	4,007	3,867	30,136
Barbados	81	.....	.....	.....	.....	690	520	108	.....	17	1,416
Jamaica	515	.....	.....	1,113	676	106	10,897	205	159	501	13,059
Trinidad and Tobago	213	2	12	1,368	842	747	1,497	82	561	283	4,237
Other British West Indies	393	.....	.....	840	615	734	1,569	7	.....	168	3,486
Cuba	30,801	79	96	30,152	17,019	6,080	97,390	20,756	12,182	32,124	216,448
Danish West Indies	153	.....	.....	24	27	421	875	7	.....	257	1,740
Dutch West Indies	730	.....	.....	.....	.....	2	1,198	7	2,013	112	4,064
French West Indies	829	.....	.....	.....	.....	.....	21,273	1,063	627	876	24,668
Haiti	198	.....	.....	.....	.....	59	6,477	.....	52	401	7,187
Dominican Republic	1,039	.....	.....	528	608	269	9,030	768	783	993	13,490
TOTALS, NORTH AMERICA	$144,044	12,399	$33,971	47,147	$33,600	$46,559	$437,692	$44,050	$97,281	$256,743	$1,093,940
SOUTH AMERICA:											
Argentina	$62,403	.....	.....	3,681	$3,970	$20,407	$470,123	$11,634	$251,165	$57,320	$877,022
Bolivia	62	.....	.....	.....	.....	.....	1,082	.....	1,887	32	3,063
Brazil	13,973	.....	.....	1,200	874	4,612	32,637	4,139	59,970	37,151	153,356
Chile	43,750	1,476	$6,381	5,781	5,092	3,644	163,966	7,900	49,072	31,948	311,753
Colombia	211	.....	.....	165	178	279	9,925	.....	4,325	947	15,865
Ecuador	1,425	.....	.....	.....	.....	626	9,547	66	1,561	262	13,487
British Guiana	670	.....	.....	300	219	.....	1,788	524	586	127	3,914
Paraguay	.....	.....	.....	.....	.....	.....	64	.....	.....	.....	64
Peru	5,668	.....	.....	.....	.....	543	23,309	86	7,311	1,572	38,489
Uruguay	35	.....	.....	.....	.....	1,890	10,438	.....	57,591	4,177	74,140
Venezuela	4,376	.....	.....	.....	.....	1,226	22,654	.....	1,957	1,879	32,092
TOTALS, SOUTH AMERICA	$132,573	1,476	$6,381	11,127	$10,333	$33,236	$745,533	$24,349	$435,425	$135,415	$1,523,245
ASIA:											
Aden	.....	.....	.....	.....	.....	.....	.....	.....	10	.....	$10
China	$5,937	182	$446	3,744	$4,314	$2,244	.....	$89	$9,114	$9,971	32,115
British China	.....	.....	.....	.....	.....	.....	$28,417	.....	.....	.....	28,417
Japanese China	88	658	597	990	935	.....	1,000	.....	.....	283	2,903
Chosen	945	.....	.....	144	107	.....	175	.....	.....	62	1,289
British India	6,206	.....	.....	3,969	2,856	3,861	35,085	1,069	26,501	17,836	93,414
Straits Settlements	3,808	12	30	752	1,008	641	56,730	632	4,589	17,510	84,948
Other British East Indies	265	.....	.....	.....	.....	120	5,251	.....	.....	231	5,867
Dutch East Indies	4,405	2	15	200	387	.....	28,907	354	6,385	4,592	45,045
French East Indies	11,320	.....	.....	.....	.....	.....	4,466	.....	.....	.....	15,786
Hong Kong	.....	132	351	4,075	3,614	11	16,009	.....	.....	1,244	21,229
Japan	20,474	8,361	13,240	34,610	27,099	713	57,052	1,347	1,381	31,905	153,211
Russia in Asia	.....	12	85	24	85	3,056	262,263	.....	.....	3,934	269,423
Siam	975	.....	.....	230	276	41	549	.....	10,478	.....	12,319
TOTALS, ASIA	$54,423	9,359	$14,764	48,738	$40,681	$10,687	$495,904	$3,491	$58,458	$87,568	$765,976
OCEANIA:											
Australia	$20,096	240	$832	93,340	$63,031	$6,735	$126,071	$6,238	$6,204	$15,045	$244,252
New Zealand	4,625	1,252	4,202	3,731	6,387	2,630	131,145	4,892	2,113	8,407	164,401
Other British Oceania	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
French Oceania	709	.....	.....	30	40	.....	611	149	.....	159	1,668
German Oceania	.....	.....	.....	.....	.....	.....	545	158	.....	1,468	2,171
Philippine Islands	38,643	588	1,358	2,558	3,101	3,322	335,952	12,376	30,562	73,517	498,831
TOTALS OCEANIA	$64,110	2,080	$6,392	99,659	$72,559	$12,687	$594,324	$23,813	$38,879	$98,596	$911,360

EXPORTED TO—	Belting, Hose and Packing. Value.	Boots. Pairs.	Boots. Value.	Shoes. Pairs.	Shoes. Value.	Druggists' Rubber Sundries. Value.	Tires. Automobile. Value.	Tires. All Others. Value.	Insulated Wire and Cable. Value.	All Other Rubber Manufactures. Value.	Totals. Value.
AFRICA:											
Belgian Congo	$11,903	.....	.....	.....	.....	.....	.....	.....	.....	.....	$11,903
British West Africa	.....	.....	.....	.....	.....	.....	$204	.....	.....	.....	204
British South Africa	55,664	729	$2,510	25,248	$21,676	$2,919	28,588	$5,512	$5,549	$13,874	136,292
British East Africa	.....	.....	.....	.....	.....	.....	4,988	.....	.....	45	5,033
French Africa	.....	.....	.....	.....	.....	.....	656	.....	.....	444	1,100
Italian Africa	2,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,500
Portuguese Africa	46	.....	.....	.....	.....	.....	.....	50	.....	234	330
Egypt	1,492	.....	.....	.....	.....	.....	11,101	.....	350	382	13,325
TOTALS, AFRICA	$71,605	729	$2,510	25,248	$21,676	$2,919	$45,537	$5,562	$5,899	$14,979	$170,687
TOTALS	$585,143	51,328	$88,717	506,679	$378,559	$146,461	$3,236,424	$259,014	$1,420,699	$889,151	$7,004,168

(Compiled by the Bureau of Foreign Commerce, Department of Commerce, Washington, D. C.)

OFFICIAL INDIA RUBBER STATISTICS FOR THE UNITED STATES.

For the Fiscal Years 1917-18-19 *and June* 1918-19.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	June. 1918. Pounds.	June. 1918. Value.	June. 1919. Pounds.	June. 1919. Value.	Twelve Months Ended June 30. 1917. Pounds.	1917. Value.	1918. Pounds.	1918. Value.	1919. Pounds.	1919. Value.
UNMANUFACTURED—*free:*										
India rubber:										
From—										
France	.....	.....	.....	.....	616,772	$300,052	508,017	$225,803	347,003	$96,447
Netherlands	.....	.....	.....	.....	102,726	69,522	.....	.....	.....	.....
Portugal	230,447	$73,770	.....	.....	3,719,703	1,439,498	538,076	220,133	87,422	24,470
United Kingdom	1,521,740	824,645	3,288,020	$1,466,303	78,742,217	51,851,269	21,926,945	12,793,606	21,498,871	10,090,931
Canada	251,120	108,630	15,159	7,149	2,229,868	1,310,705	4,247,287	2,518,248	7,004,949	3,341,512
Central America	22,990	7,865	61,893	28,398	1,347,931	610,911	736,014	287,247	360,390	123,943
Mexico	182,169	67,071	133,258	30,721	1,488,636	611,309	1,033,087	451,915	2,312,423	815,284
Brazil	4,826,422	1,684,585	3,138,771	854,559	56,818,966	25,654,924	41,277,914	14,307,158	46,407,924	14,744,409
Peru	.....	.....	87,934	30,046	2,516,729	1,227,776	3,565,094	1,471,823	3,379,327	1,148,674
Other South America	55,686	25,965	131,229	57,567	3,756,777	1,667,133	3,182,605	1,299,351	1,826,559	717,675
British East Indies	25,055,644	11,543,605	25,659,290	10,600,470	136,404,368	76,993,051	258,245,724	138,324,996	272,119,880	108,168,581
Dutch East Indies	1,531,289	741,924	3,771,844	1,460,689	45,027,410	27,239,501	53,663,857	30,504,525	39,467,761	15,411,620
Other countries	.....	.....	345,083	116,525	601,608	353,123	674,395	395,587	7,659,012	3,244,586
Totals	33,677,447	$15,078,060	36,632,481	$14,652,427	333,373,711	$189,328,674	389,599,015	$202,800,392	402,471,531	$157,928,132
Balata	102,683	54,136	89,758	54,839	3,287,445	1,649,452	2,449,881	1,278,610	1,238,852	593,633
Guayule	.....	.....	872,646	209,523	2,854,372	764,484	4,307,539	1,341,095	2,990,253	761,060
Jelutong (Pontianak)..*lbs. dut.*	.....	.....	.....	.....	23,376,389	1,044,022	9,994,571†	501,450†	.....	.....
Jelutong (Pontianak)..*lbs. free*	409,946	29,403	2,353,411	305,349	.....	.....	7,481,292*	474,366*	11,363,283	1,199,216
Gutta percha	.....	.....	608,309	102,064	2,021,794	332,223	1,151,312	147,323	4,151,085	710,510
Totals	34,190,076	$15,161,599	40,556,605	$15,324,202	364,913,711	$193,118,855	414,983,610	$206,543,236	422,215,004	$161,292,551
Rubber scrap	734,714	53,711	1,030,894	74,376	20,517,328	1,569,448	13,980,303	1,619,222	8,483,383	644,480
Totals, unmanufactured.	34,924,790	$15,215,310	41,587,499	$15,398,578	385,431,039	$194,688,303	428,963,913	$207,562,458	430,698,387	$161,937,031
MANUFACTURED—*dutiable:*										
India rubber and gutta percha.	.....	$58,861	.....	$52,678	.....	$782,929	.....	$616,741	.....	$622,940
India rubber substitutes	.....	24,074	12,134	2,102	.....	39,815	.....	136,438	2,159,716	301,479
Totals, manufactured	.....	$82,935	12,134	$54,780	.....	$822,744	.....	$753,179	2,159,716	$924,419

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—										
Automobile tires:										
To—										
France	.....	$104,028	.....	$192,628	.....	$425,132	.....	$661,648	.....	$3,227,830
Russia in Europe	.....	.....	.....	.....	.....	143,916	.....	94,264	.....	211
United Kingdom	.....	18,512	.....	143,718	.....	2,636,654	.....	618,071	.....	832,492
Canada	.....	334,677	.....	158,293	.....	1,485,939	.....	1,766,518	.....	961,352
Mexico	.....	84,348	.....	74,879	.....	257,413	.....	777,984	.....	1,001,233
Cuba	.....	108,500	.....	97,390	.....	1,019,915	.....	1,336,233	.....	2,009,263
Argentina	.....	292,753	.....	470,123	.....	1,301,344	.....	1,649,840	.....	1,837,884
Brazil	.....	88,480	.....	32,637	.....	696,876	.....	455,102	.....	667,319
Chile	.....	.....	.....	163,966	.....	.....	.....	.....	.....	1,130,873
British India	.....	12,074	.....	35,085	.....	145,820	.....	416,411	.....	447,856
Dutch East Indies	.....	550	.....	28,907	.....	415,742	.....	347,912	.....	812,425
Australia	.....	199,324	.....	126,071	.....	783,209	.....	819,755	.....	880,118
New Zealand	.....	101,972	.....	131,145	.....	689,705	.....	946,804	.....	884,503
Philippine Islands	.....	60,290	.....	335,952	.....	345,702	.....	863,727	.....	1,412,929
British South Africa	.....	72,529	.....	28,588	.....	391,211	.....	693,065	.....	620,732
Other countries	.....	413,828	.....	1,217,042	.....	1,591,623	.....	2,530,337	.....	5,903,180
Totals	.....	$1,891,865	.....	$3,236,424	.....	$12,330,201	.....	$13,977,671	.....	$22,630,200
All other tires	.....	$89,240	.....	$259,014	.....	$2,547,652	.....	$1,130,623	.....	$1,264,175
Scrap and old .....*lbs.*	373,789	31,933	473,282	62,904	3,696,661	415,526	2,117,257	235,811	3,886,049	436,009
Reclaimed .....*lbs.*	350,462	63,943	500,175	81,269	4,938,991	814,199	3,284,958	567,278	3,669,693	616,802
Belting, hose and packing	.....	404,873	.....	585,143	.....	3,532,384	.....	4,578,396	.....	5,716,016
Rubber boots .....*pairs*	14,949	57,370	51,328	88,717	600,455	1,483,379	1,559,598	4,861,213	443,562	1,607,412
Rubber shoes .....*pairs*	83,207	72,357	506,679	378,559	3,356,484	1,716,225	1,244,170	913,128	2,668,663	2,559,641
Insulated wire and cables	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Druggists' rubber sundries	.....	82,251	.....	146,461	.....	.....	.....	884,245	.....	1,019,170
Other rubber manufactures	.....	498,696	.....	889,151	.....	8,265,509	.....	6,194,816	.....	8,007,163
Totals, manufactured	.....	$3,192,528	.....	$5,727,642	.....	$31,105,075	.....	$33,343,181	.....	$43,856,588

EXPORTS OF FOREIGN MERCHANDISE.

	June.				Twelve Months Ended June 30.					
	1918.		1919.		1917.		1918.		1919.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
UNMANUFACTURED—										
Balata	.....	.....	22,335	$15,155	879,765	$474,538	473,915	$303,338	572,178	$344,267
Guayule	.....	.....	.....	.....	.....	.....	17,723	5,231	990	475
Jelutong (Pontianak)	69,440	$9,228	.....	.....	.....	.....	72,255	9,619	5,037	912
Gutta percha	.....	.....	.....	.....	763	558	202,646	47,211	10,385	2,251
India rubber	643,181	311,319	379,635	162,632	12,355,898	7,364,820	8,208,280	4,274,543	3,012,554	1,394,824
Rubber scrap	.....	.....	.....	.....	1,626	215	74,497	16,965	777	23
Totals, unmanufactured.	.....	$320,547	.....	$177,787	.....	$7,780,131	.....	$4,656,907	.....	$1,742,752
MANUFACTURED—										
Gutta percha	.....	.....	.....	$63	.....	$421	.....	$18,216	.....	$15,597
India rubber	.....	$699	.....	.....	.....	10,905	.....	13,563	.....	16,946
Totals, manufactured..	.....	$699	.....	$63	.....	$11,326	.....	$31,779	.....	$32,543
Substitutes, elasticon and similar	.....	.....	50	$131	.....	$1,728	.....	$11,098	716,343	$54,954

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—										
To Alaska—										
Belting, hose and packing..	.....	$9,279	.....	$11,828	.....	$161,464	.....	$122,583	.....	$113,741
Boots and shoes.....*pairs*	8,584	26,994	6,766	19,164	111,045	272,688	78,600	217,877	75,345	186,915
Other rubber goods.....	.....	5,935	.....	5,109	.....	46,036	.....	79,411	.....	40,916
Totals	.....	$42,208	.....	$36,101	.....	$480,188	.....	$419,871	.....	$341,572
To Hawaii—										
Belting, hose and packing..	.....	$5,088	.....	$15,398	.....	$88,766	.....	$104,221	.....	$101,410
Tires—										
For automobiles	.....	57,043	.....	63,065	.....	735,786	.....	1,082,331	.....	1,041,059
Other tires	.....	5,062	.....	3,841	.....	85,934	.....	81,682	.....	32,244
Other rubber goods.....	.....	14,743	.....	21,472	.....	195,001	.....	226,464	.....	140,415
Totals	.....	$81,936	.....	$103,776	.....	$1,105,487	.....	$1,494,698	.....	$1,315,128
To Philippine Islands—										
Belting, hose and packing..	.....	$24,228	.....	$38,643	.....	$63,697	.....	$150,092	.....	$283,584
Boots and shoes .....*pairs*	2,518	1,995	3,146	4,459	288,646	200,376	256,069	179,044	193,127	160,000
Tires	.....	61,345	.....	348,328	.....	446,186	.....	1,018,782	.....	1,554,745
Other rubber goods.....	.....	13,051	.....	76,839	.....	114,395	.....	183,840	.....	500,987
Totals	.....	$100,619	.....	$468,269	.....	$824,654	.....	$1,531,758	.....	$2,499,376
To Porto Rico—										
Belting, hose and packing..	.....	$6,816	.....	$4,707	.....	$52,118	.....	$50,367	.....	$54,710
Tires—										
For automobiles	.....	52,723	.....	66,343	.....	584,732	.....	772,650	.....	871,329
Other tires	.....	120	.....	3,182	.....	8,717	.....	14,803	.....	21,816
Other rubber goods	.....	13,072	.....	15,766	.....	104,563	.....	116,595	.....	138,715
Totals	.....	$72,731	.....	$89,998	.....	$750,130	.....	$954,415	.....	$1,086,570

† July 1 to October 1. * Beginning November 1.

EXPORTS OF UNITED STATES RUBBER GOODS, CALENDAR YEAR 1918. (BY COUNTRIES.)

EXPORTED TO—	Belting Hose and Packing.	Boots.		Shoes.		Druggists' Rubber Sundries.	Tires		All Other Manufactures of Rubber	Total Values
EUROPE:	Value.	Pairs.	Value.	Pairs.	Value.	Value.	Automobile. Value.	All Other. Value.	Value.	
Azores and Madeira Islands	.....	.....	.....	233	$167	.....	$72	.....	$86	$325
Belgium	.....	5,990	$32,705	.....	.....	.....	28,718	.....	.....	61,423
Denmark	$1,539	1	4	1	4	$506	.....	.....	6,006	8,059
France	31,905	577,715	2,120,031	55,076	105,570	36,582	901,013	$49,438	910,898	4,155,437
Greece	2	.....	.....	.....	.....	.....	2,000	.....	1,073	3,075
Iceland, and Faroe Islands.	80	2,627	5,868	12,238	9,546	85	.....	31	1,223	16,833
Italy	2,541	.....	.....	.....	.....	21,905	5,426	283	229,308	259,463
Netherlands	.....	.....	.....	.....	.....	.....	215	.....	.....	215
Norway	27,672	12	81	5	8	900	6,668	300	4,650	40,279
Portugal	4,828	.....	.....	322	425	1,057	6,918	1,636	5,367	20,231
Russia in Europe	.....	1,848	9,240	.....	.....	.....	211	.....	.....	9,451
Spain	4,393	460	2,029	3,656	1,812	6,382	24,454	.....	6,923	45,993
Sweden	.....	.....	.....	.....	.....	.....	18,825	.....	.....	18,825
Switzerland	4,400	.....	.....	.....	.....	.....	.....	2,467	7,172	14,039
United Kingdom—										
England	144,724	56,243	232,983	20,050	24,140	64,268	198,022	19,665	718,118	1,401,920
TOTALS, EUROPE	$222,084	644,896	$2,402,941	91,581	$141,672	$131,685	$1,192,542	$73,820	$1,890,824	$6,055,568
NORTH AMERICA:										
Bermuda	$956	21	$114	918	$1,144	$1,042	$200	$565	$2,278	$6,299
British Honduras	389	.....	.....	25,484	24,284	855	4,882	666	1,099	32,175
Canada	511,381	57,513	189,566	318,919	722,994	235,394	1,278,000	66,452	1,730,564	4,734,351
Central American States—										
Costa Rica	6,067	.....	.....	96	76	772	5,851	901	2,690	16,357
Guatemala	7,755	.....	.....	2,075	2,195	3,766	20,073	888	7,761	42,438
Honduras	11,463	66	146	14,713	11,645	1,452	22,014	1,564	2,623	50,907
Nicaragua	7,858	.....	.....	5,037	5,698	1,195	3,448	226	11,970	30,395
Panama	79,545	6,146	7,177	31,695	29,080	5,886	117,442	14,064	34,092	287,286
Salvador	7,577	.....	.....	.....	.....	1,136	26,848	349	20,448	56,358
Mexico	459,325	196	1,081	24,664	23,992	53,225	999,569	50,769	127,598	1,715,559
Miquelon, Langley, etc....	35	2,196	7,095	1,165	748	31	.....	.....	616	8,525
Newfoundland and Labrador	26,783	40,189	125,243	128,866	124,214	2,296	15,212	451	24,320	318,519
West Indies—										
British—										
Barbados	1,896	9	42	1,883	1,829	1,336	30,435	1,656	3,061	40,255
Jamaica	8,424	.....	.....	1,499	1,762	2,978	129,825	12,814	9,854	165,657
Trinidad and Tobago..	8,618	.....	.....	3,087	2,123	5,438	90,862	1,512	8,178	116,731
Other British	2,961	24	38	4,738	3,829	1,641	29,100	1,349	2,182	41,100
Cuba	386,069	1,391	1,888	83,593	65,922	88,561	1,454,090	103,071	386,503	2,486,104
Danish (Virgin Islands, the United States)....	1,182	.....	.....	731	878	447	10,020	197	1,703	14,427
Dominican Republic	17,894	.....	.....	1,792	2,162	4,364	95,511	7,159	17,917	145 007
Dutch	831	.....	.....	453	402	518	13,515	153	1,414	16,883
French	2,611	.....	.....	688	695	42	47,684	1,061	2,443	54,536
Haiti	3,354	1	6	193	304	426	27,439	2,831	3,211	37,571
TOTALS, NORTH AMERICA	$1,552,974	107,752	$332,396	652,289	$1,025,976	$412,801	$4,422,020	$268,698	$2,402,525	$10,417,390

EXPORTED TO—	Belting Hose and Packing. Value.	Boots. Pairs.	Boots. Value.	Shoes. Pairs.	Shoes. Value.	Druggists' Rubber Sundries. Value.	Tires. Automobile. Value.	Tires. All Other. Value.	All Other Manufactures of Rubber Value.	Total Values.
SOUTH AMERICA:										
Argentina	$163,077	2	$8	7,706	$6,181	$35,425	$1,429,647	$89,519	$165,544	$1,889,401
Bolivia	43,595	.....	.....	36	21	90	31,678	411	2,381	78,176
Brazil	197,360	148	901	20,607	15,339	27,656	389,822	8,115	95,974	735,167
Chile	389,694	1,628	7,739	13,521	11,729	26,338	951,102	43,809	142,355	1,572,766
Colombia	20,578	12	38	1,443	1,254	1,941	49,630	7,374	17,026	97,841
Ecuador	8,292	.....	.....	1,648	1,626	3,005	47,379	592	6,296	67,190
Falkland Islands	2,400	.....	.....	.....	.....	.....	.....	.....	.....	2,400
Guiana—										
British	2,599	18	57	7,883	5,588	1,792	56,451	1,690	6,165	74,342
Dutch	1,327	3	7	192	143	415	3,776	829	1,532	8,029
French	41	.....	.....	.....	.....	.....	75	.....	.....	116
Paraguay	730	.....	.....	.....	.....	21	264	.....	515	1,530
Peru	82,348	189	977	1,073	1,192	4,621	205,887	1,495	26,557	323,077
Uruguay	28,036	24	80	2,400	2,004	3,913	213,290	101	19,523	266,947
Venezuela	8,411	72	312	544	633	7,592	136,881	2,789	22,362	178,980
TOTALS, SOUTH AMERICA	$948,488	2,096	$10,119	57,053	$45,710	$112,809	$3,515,882	$156,724	$506,230	$5,295,962
ASIA:										
Aden	.....	.....	.....	.....	.....	.....	$2,536	.....	.....	$2,536
China	$74,840	6	$32	4,390	$3,738	$13,697	71,558	$1,148	$32,328	197,341
China, leased territory—										
Japanese	.....	.....	.....	.....	.....	63	47	.....	862	972
Chosen	5,968	.....	.....	103	111	255	1,422	.....	432	8,188
East Indies—										
British—										
British India	47,489	144	547	6,426	5,205	18,231	294,619	9,447	45,213	420,751
Straits Settlements	7,051	12	36	1,167	1,210	1,206	510,881	4,110	10,464	534,958
Other British	1,482	.....	.....	225	293	12	54,429	1,910	5,421	63,547
Dutch	46,818	.....	.....	845	910	6,057	519,535	14,764	74,820	662,904
French	9,836	.....	.....	.....	.....	.....	1,514	355	238	11,943
Hongkong	13,259	347	1,344	4,862	3,314	2,317	18,458	894	4,609	44,195
Japan	346,516	4,500	11,420	67,330	65,082	4,819	118,685	16,747	129,559	692,828
Russia in Asia	.....	3	29	18	41	.....	8,806	1,439	1,782	12,097
Siam	64	.....	.....	.....	.....	217	20,762	.....	1,127	22,170
Turkey in Asia	.....	.....	.....	.....	.....	.....	1,967	.....	139	1,206
TOTALS, ASIA	$553,323	5,012	$13,408	85,306	$79,904	$46,874	$1,624,319	$50,814	$306,994	$2,675,636
OCEANIA:										
British—										
Australia	$437,356	3,008	$8,567	80,453	$54,996	$31,875	$1,144,405	$31,231	$199,893	$1,908,323
New Zealand	52,485	5,830	17,383	7,118	4,687	10,290	950,985	10,287	112,009	1,158,126
Other British	3	28	35	2,284	1,737	19	13,842	251	657	16,544
French	1,348	.....	.....	1,553	1,966	235	14,859	2,306	3,058	23,772
German	97	.....	.....	288	334	.....	6,188	122	1,746	8,487
Philippine Islands	213,517	623	1,911	188,305	150,924	18,341	982,224	133,513	259,465	1,759,895
TOTALS, OCEANIA	$704,806	9,489	$27,896	280,001	$214,644	$60,760	$3,112,503	$177,710	$576,828	$4,875,147
AFRICA:										
British Africa—										
West	$6,175	96	$192	133	$130	.....	$43,948	$4,689	$1,130	$56,264
South	472,235	3,232	12,117	118,303	76,356	$7,579	591,378	23,268	75,435	1,258,368
East	257	12	45	324	251	.....	5,216	88	18	5,875
Canary Islands	.....	.....	.....	.....	.....	.....	.....	.....	42	42
Egypt	360	.....	.....	.....	.....	.....	.....	.....	15	375
French Africa	13	.....	.....	.....	.....	.....	550	26	879	1,468
Liberia	.....	.....	.....	120	104	1	.....	.....	.....	105
Madagascar	303	.....	.....	.....	.....	.....	565	.....	.....	868
Morocco	.....	.....	.....	.....	.....	.....	.....	.....	125	125
Portuguese Africa	64,225	1	2	.....	.....	30	2,698	51	1,034	68,040
TOTALS, AFRICA	$543,568	3,341	$12,356	118,880	$76,841	$7,610	$644,355	$28,122	$78,678	$1,391,530
[4]Calendar year, 1918	$4,525,243	772,586	$2,799,186	1,285,110	$1,584,747	$772,539	$14,511,621	$755,888	$5,762,079	$30,711,233
Fiscal year, 1917-18	$4,578,396	1,559,598	$4,861,213	1,244,170	$913,128	$884,245[3]	$13,977,671	$1,130,623	$6,194,816	$32,540,092
Fiscal year, 1916-17	3,532,383	600,455	1,483,379	3,356,484	1,716,225	.....	12,330,201	2,547,652	8,265,509	29,875,349
Fiscal year, 1015-16	2,986,953	720,130	1,619,260	1,976,896	1,046,102	.....	17,936,227	3,003,077	7,290,345	33,881,964
Fiscal year, 1914-15	1,807,848	318,727	726,765	2,219,900	2,053,560	.....	4,963,270	576,602	3,525,486	13,653,531
Fiscal year, 1913-14	2,372,887	101,361	279,206	1,634,258	834,289	.....	3,505,267	563,372	3,453,472	11,008,493
Fiscal year, 1912-13	2,605,551	109,528	274,330	2,231,467	1,163,953	.....	3,943,220	611,458	3,913,036	12,511,548
		Boots and Shoes[1] Pairs.								
Fiscal year, 1911-12	$2,315,484	.....	2,545,076	$1,502,890	.....	.....	$2,657,809	$546,833	$4,144,273	$11,167,289
Fiscal year, 1910-11	2,163,416	.....	3,984,332	2,219,430	.....	.....	2,085,107[2]	592,470	3,886,825	10,947,248
Fiscal year, 1909-10	1,960,825	.....	3,791,084	1,984,739	.....	.....	.....	.....	5,115,331	9,060,895
Fiscal year, 1908-09	1,498,445	.....	2,396,435	1,292,673	.....	.....	.....	.....	3,823,956	6,615,074
Fiscal year, 1907-08	1,347,775	.....	3,080,253	1,614,290	.....	.....	.....	.....	3,743,040	6,705,105
Fiscal year, 1906-07	1,253,369	.....	2,310,420	1,231,898	.....	.....	.....	.....	3,729,643	6,214,910
Fiscal year, 1905-06	1,221,159	.....	2,693,690	1,505,082	.....	.....	.....	.....	2,966,144	5,692,385
Fiscal year, 1904-05	994,100	.....	2,390,539	1,214,342	.....	.....	.....	.....	2,572,375	4,780 817
Fiscal year, 1903-04	880,010	.....	2,310,420	1,231,898	.....	.....	.....	.....	3,729,643	6,214,910
Fiscal year, 1902-03	819,985	.....	2,307,401	1,056,491	.....	.....	.....	.....	2,299,875	4,176,351
Fiscal year, 1901-02	634,146	.....	2,594,708	1,046,315	.....	.....	.....	.....	1,781,941	3,462,402
Fiscal year, 1900-01	565,726	.....	1,459,100	724,015	.....	.....	.....	.....	1,727,527	3,017,268

[1] States separately after 1912. [2] Tires were not specifically reported before 1910-11. [3] Druggists' rubber sundries were not specifically reported before 1917-18. [4] These figures are given for the calendar year beginning January 1, 1918, to December 31, 1918.

EXPORTS OF INDIA RUBBER FROM MANAOS DURING THE MONTH OF JUNE, 1919.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
Stowell & Co.....*kilos*	46,605	4,994	36,939	480	89,018	.....	21,930	2,240	51,377	75,547	164,565
Tancredo, Porto & Co.....	.....	680	48,156	1,164	50,000	81,453	16,937	4,454	1,156	104,000	154,000
T. G. Araujo	.....	.....	.....	.....	.....	21,156	9,697	11,897	32,009	74,759	74,759
Soc. An. Armazens Andresen....	.....	.....	.....	.....	.....	60,831	.....	865	385	62,081	62,081
General Rubber Co. of Brazil....	8,339	16,741	2,606	12,314	40,000	.....	12,766	2,240	.....	15,000	55,000
B. Lévy & Co.....	.....	.....	.....	.....	.....	17,614	2,192	4,882	23,458	48,146	48,146
T. A. Mendes & Co.....	.....	20,640	.....	.....	20,640	27,370	.....	.....	.....	27,370	48,010
Higson & Fall	.....	.....	.....	.....	.....	3,765	564	3,158	15,611	23,098	23,098
Adelbert H. Alden, Ltd.....	.....	.....	.....	.....	.....	10,370	.....	.....	.....	10,370	10,370
Vianna & Lyra.....	.....	960	.....	.....	960	.....	.....	.....	.....	.....	960
Totals, Manáos.....	54,944	44,015	87,701	13 958	200,618	222,559	64,080	29,736	123,996	440,371	640,989
In transit, Iquitos.....	16,754	24,453	8,059	22,490	71,756	16,877	25,450	7,978	38,557	88,862	160,618
Totals	76,698	68,468	95,760	36,448	272,374	239,436	89,530	37,714	162,553	529,233	801,607

(Compiled by Stowell & Co., Manáos, Brazil.)

EXPORTS OF INDIA RUBBER FROM MANAOS FROM JANUARY TO JUNE, 1919.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
Tancredo, Porto & Co.....*kilos*	494,813	139,028	355,512	231,647	1,221,000	593,474	123,466	20,666	1,394	739,000	1,960,000
Stowell & Co.....	233,969	110,982	123,402	294,011	762,364	342,684	51,693	59,357	479,281	933,015	1,695,379
T. A. Mendes & Co.....	78,052	109,687	147,518	85,334	420,591	896 072	.....	8,400	.....	904,472	1,325,063
General Rubber Co. of Brazil...	285,073	97,229	174,509	163,189	720,000	298,637	29,294	29,208	28,861	386,000	1,106,000
T. G. Araujo.....	.....	.....	30,960	10,240	41,200	347,878	38,057	81,972	131,078	598,985	640,185
Adelbert H. Alden, Ltd.....	11,429	20,232	8,135	12,216	52,012	241,728	.....	.....	.....	241,728	293,740
Higson & Fall.....	2,193	170	1,069	1,914	5,346	135,370	6,564	9,429	18,761	170,124	175,470
B. Lévy & Co.....	.....	.....	.....	.....	.....	58,163	6,620	17,290	33,249	115,322	115,322
T. Essabbá	42,099	6,241	1,660	.....	50,000	19,034	2,140	1,465	.....	22,639	72,639
Soc. An. Armazens Andresen....	.....	.....	.....	.....	.....	60,831	.....	865	385	62,081	62,081
Paulo Lévy & Co.....	.....	.....	.....	.....	.....	14,510	1,820	4,526	10,915	31,771	31,771
Amorim Irmãos	5 440	.....	12,690	260	18,390	.....	.....	.....	.....	.....	18,390
Simfronio & Co.....	7,015	1,306	1,628	737	10,686	.....	.....	.....	.....	.....	10,686
Antonio Pereira	8,181	1,247	199	.....	9,627	.....	.....	.....	.....	.....	9,627
Oscar Ramos	.....	.....	.....	.....	.....	7,040	.....	.....	.....	7,040	7,040
Vianna & Lyra	.....	960	.....	.....	960	.....	.....	.....	.....	.....	960
Totals, Manáos 1,168,264		487,082	857,282	799,548	3,312,176	3,015,421	259,654	233,178	703,924	4,212,177	7,524,353
In transit, Iquitos.....	126,505	447,875	127,893	128,564	830,837	188,486	55,290	27,759	154,619	426,154	1,256,991
Totals 1,294,769		934,957	985,175	928,112	4,143,013	3,203,907	314,944	260,937	858,543	4,638,331	8,781,344

(Compiled by Stowell & Co., Manáos, Brazil.)

EXPORTS OF INDIA RUBBER FROM PARA, MANAOS AND IQUITOS, FROM JANUARY TO JUNE, 1919.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
Stowell & Co.....*kilos*	465,006	117,593	427,495	245,048	1,255,142	719,370	20,688	85,786	262,213	1,088,057	2,343,199
J. Marques	492,016	149,260	535,669	220,025	1,396,970	697,742	.....	.....	52,050	749,792	2,146,762
Saurez, Filho & Co.....	657,434	.....	83,562	420,697	1,161,693	152,849	.....	.....	55,523	208,372	1,370,065
General Rubber Co.....	305,774	46,013	213,955	221,253	786,995	262,406	16,771	13,158	797	293 132	1,080,127
Adelbert H. Alden, Ltd.....	94,184	57,351	176,071	68,498	396,104	383,755	.....	.....	10,142	393,897	790,001
Bitar & Irmãos	111,406	30 731	103,614	195,430	441,181	54,296	4,034	4,090	131,463	193,883	635,064
F. Chamié & Co.....	153,849	13,563	151,666	245,680	564,698	.....	.....	5,280	26,250	31,530	596,228
G. Fradelizi & Co.....	62,548	24,946	110,441	101,805	299,740	181,693	543	.....	.....	182,236	481,976
Alfredo Valle	37,406	.....	79,509	20,700	137,615	40,195	1,383	4,661	13,643	59,882	197,497
Pires, Teixeria & Co.....	18,700	1,360	19,470	.....	39,530	.....	.....	.....	.....	.....	39,530
Sundries	319,475	16,646	117,854	366,198	820,173	111,322	3,078	35,026	41,958	191,384	1,011,557
Totals from Pará.....2,717,798		457,463	2,019,246	2,105,334	7,299,841	2,603,628	46,497	148,001	594,039	3,392,165	10,692,006
Stowell & Co.....	233,969	110,982	123,402	294,011	762,364	290,889	51,693	59,357	376,434	778,373	1,540,737
Tancredo, Porto & Co.....	494,813	139,028	355,512	231,647	1,221,000	518,651	99,899	16,212	238	635,000	1,856,000
J. A. Mendes & Co.....	98,692	89,047	147,518	85,334	420,591	896,072	.....	8,400	.....	904.472	1,325,063
General Rubber Co.....	285,073	97,229	174,509	163,189	720,000	298,637	29,294	29,208	28,861	386,000	1,106,000
J. G. Araujo.....	.....	.....	30,960	10,240	41,200	316,575	26,920	28,848	25,809	398,152	439,352
Adelbert H. Alden, Ltd.....	11,429	20,232	8,136	12,215	52,012	231,358	.....	.....	.....	231.358	283,370
Higson & Fall.....	2,193	170	1,069	1,914	5,346	135,370	6,414	7,697	18,127	167,608	172,954
Sundries	62,735	8,794	16,177	997	88,703	160,745	9,460	24,146	44,549	238,900	327,603
Totals from Manaos.....1,188,904		465,482	857,283	799,547	3,311,216	2,848,297	223,680	173,868	494,018	3,739,863	7,051,079
From Iquitos	780,327	22,224	275,769	239,833	1,318,153	229,518	4,096	31,084	156,612	421,310	1,739,463
From Pará for Lisbon.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32,000
From Pará for South America..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,790
Totals 4,687,029		945,169	3,152,298	3,144,714	11,929,210	5,681,443	274,273	352,953	1,244,669	7,553,338	19,518,338

(Compiled by Stowell & Co., Pará, Brazil.)

EXPORTS OF INDIA RUBBER FROM PARA, MANAOS AND IQUITOS DURING THE MONTH OF JULY, 1919.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
J. Marques.....*kilos*	83,075	2,040	44,432	21,171	150,718	30,090	.....	.....	.....	30,090	180,808
Ferreira, Costa & Co.....	48.990	1,940	.....	72,000	122,930	.....	.....	.....	.....	.....	122.930
General Rubber Co.....	69.234	4,915	5,081	20,997	100,227	.....	.....	.....	.....	.....	100,227
F. Chamié	25,840	7,480	33,150	13,650	80,120	.....	.....	.....	.....	.....	80,120
Stowell & Co.....	48,121	7,449	12,767	3 659	71,996	.....	.....	9,481	.....	9,481	81,477
Alfredo Valle & Co.....	16,830	5,440	38,482	16,348	77,100	.....	.....	.....	.....	.....	77,100
Saurez, Fillio & Co.....	46.109	.....	.....	27,151	73,260	.....	.....	.....	.....	.....	73,260
Bitar & Irmãos.....	2,736	393	3.777	24,431	31,337	.....	.....	.....	20,800	20,800	52,137
Adelbert H. Alden, Ltd.....	.....	2,563	2,752	.....	5,315	.....	.....	.....	.....	.....	5,315
Sundries	47,908	.....	33,129	44,971	126,008	.....	.....	.....	.....	.....	126,008
From Pará	388,843	32 220	173,570	244,378	839,011	30,090	.....	9,481	20,800	60,371	899,382
From Ducoatiara	.....	.....	.....	.....	.....	4,140	180	2,380	5,130	11,830	11,830
From Manáos	53 781	5,177	10 290	25,407	94,655	370,005	43,816	76,720	226,050	716,591	811,246
From Iquitos	15,157	.....	17,907	19.390	52,454	28,052	728	7,425	47,992	84,197	136,651
Totals	457,781	37,397	201,767	289,175	986.120	432,287	44,724	96,006	299,972	872,989	1.859,109

(Compiled by Stowell & Co., Pará, Brazil.)

RUBBER STATISTICS FOR ITALY.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Three Months Ended March.			
	1918.		1919.	
	Quintals.[1]	Lire.[2]	Quintals.	Lire.
UNMANUFACTURED—				
India rubber and gutta percha—raw and reclaimed:				
From Great Britain	1,174	.....	97	.....
India and Ceylon	517	.....	17,365	.....
Straits Settlements	3,433	.....	8,770	.....
French African Colonies	1,273	.....	1,007	.....
Brazil	1,292	.....	8,789	.....
Other countries	393	.....	233	.....
Totals	8,082	8,890,200	36,261	39,887,100
Rubber scrap	168	.....	20,160	.....
MANUFACTURED—				
India rubber and gutta percha—raw and reclaimed:				
Threads	56	123,200	90	198,000
Sheets:				
Cut sheets	.....	.....	1	2,200
Other kinds, including hard rubber	12	14,400	80	96,000
Tubes:				
Hose	51	45,900	12	10,800
Other forms	.....	.....	17	18,700
Belting	127	139,700	81	89,100
Rubber coated fabrics—*pieces:*				
For carding combs	49	63,700	77	100,100
Other forms	2	3,000	2	3,000
Boots and shoes—*pairs*	8,236	98,832	6,772	81,264
Elastic webbing	55	110,000	86	172,000
Manufactures, n. e. s.:				
From cut sheets	4	10,400	3	7,800
Elastic fabric	40	48,000	673	807,600
Tires and tubes:				
From France	835	1,825,200	1,471	2,653,200
Great Britain	179		2	
Other countries	.....		1	
Other rubber manufactures:				
From France	888	1,666,800	241	4,602,000
Great Britain	395		3,587	
United States	105		6	
Other countries	1		1	
Totals, manufactured	.....	4,149,132	.....	8,841,764
Total imports	.....	13,059,492	.....	48,728,864

EXPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Three Months Ended March.			
	1918.		1919.	
	Quintals.[1]	Lire.[2]	Quintals.	Lire.
UNMANUFACTURED—				
India rubber and gutta percha—raw and reclaimed:				
To Spain	585	245,000	1,632	653,100
United States	115		234	
Totals	.....	245,000	.....	653,100
MANUFACTURED—				
India rubber and gutta percha—				
Threads	18	39,600	84	184,800
Sheets:				
Cut sheets	6	12,000	22	44,000
Elastic fabric	20	16,000	1	800
Other kinds, including hard rubber	19	19,000	12	12,000
Tubes:				
Inner tubes	3	6,600	1	2,200
Hose	86	68,800	116	92,800
Other forms	64	60,800	76	72,200
Belting	35	35,000	94	94,000
Rubber-coated fabrics—*pieces*	38	45,600	21	25,200
Elastic webbing	252	478,800	220	418,000
Manufactures of india rubber and gutta percha, n. e. s.:				
From cut sheets	45	99,000	24	52,800
Elastic fabrics	51	56,100	45	49,500
Tires and tubes:				
To France	162	2,935,400	80	3,607,500
Great Britain	971		704	
Spain	.....		2	
Switzerland	.....		1	
British India and Ceylon	.....		100	
Straits Settlements	.....		130	
Australia	.....		241	
Argentina	4		274	
Brazil	358		291	
Other countries	763		952	
Other rubber manufactures:				
To France	70	384,000	46	403,000
Great Britain	86		41	
Spain	7		3	
Switzerland	106		28	
Egypt	21		5	
Argentina	31		48	
Brazil	17		9	
Uruguay	8		4	
Other countries	38		219	
Totals, manufactured	.....	4,256,700	.....	5,058,800
Total exports	.....	4,501,700	.....	5,711,900

[1] A quintal=220.46 pounds.
[2] A lira=$0.193.

UNITED KINGDOM RUBBER STATISTICS.

IMPORTS.

	June.			
	1918.		1919.	
	Pounds.	Value.	Pounds.	Value.
UNMANUFACTURED—				
Crude rubber:				
From—				
Dutch East Indies	466,300	£55,468	4,740,500	£458,361
French West Africa	.....	.....	26,800	1,988
Gold Coast	9,900	865	47,700	3,711
Other African countries	122,500	11,390	214,700	21,077
Peru	.....	.....	2,352	21,000
Brazil	124,600	11,002	124,880	128,582
British India	463,600	52,928	661,300	62,933
Straits Settlements and dependencies, including Labuan	1,528,400	184,115	5,949,400	574,949
Federated Malay States	652,300	79,882	5,683,900	553,003
Ceylon and dependencies	991,200	117,207	3,208,500	324,497
Other countries	182,700	21,455	185,300	18,531
Totals	4,541,500	£534,312	22,202,100	£2,168,632
Waste and reclaimed rubber	7,300	253	606,400	12,095
Totals, unmanufactured	4,548,800	£534,565	22,808,500	£2,180,727
Gutta percha	282,800	£56,299	461,400	£111,262
MANUFACTURED—				
Boots and shoes..*dozen pairs*	2,833	£23,714	3,391	£5,477
Waterproofed clothing	.....	6,487	.....	275
Automobile tires and tubes	.....	36,577	.....	107,058
Motorcycle tires and tubes	.....	.....	.....	817
Bicycle tires and tubes	.....	.....	.....	1,491
Totals	.....	£66,778	.....	£115,118

EXPORTS.

UNMANUFACTURED—				
Waste and reclaimed rubber	442,200	£10,956	1,610,200	£24,465
MANUFACTURED—				
Waterproofed clothing	.....	36,407	.....	108,285
Boots and shoes..*dozen pairs*	7,705	11,540	11,747	23,634
Insulated wire	.....	6,662	.....	96,028
Submarine cables	.....	17,200	.....	38,990
Carriage tires and tubes	.....	15,572	.....	16,767
Automobile tires and tubes	.....	107,082	.....	239,165
Motorcycle tires and tubes	.....	13,081	.....	12,111
Bicycle tires and tubes	.....	31,826	.....	134,525
Other rubber manufactures	.....	103,028	.....	247,155
Totals	.....	£342,398	.....	£916,660

EXPORTS—COLONIAL AND FOREIGN.

UNMANUFACTURED—				
Crude rubber:				
To Belgium	.....	.....	775,700	£67,334
France	1,343,800	£155,944	2,255,700	246,093
Italy	373,700	49,580	113,700	123,953
Russia	.....	.....	27,300	4,060
United States	414,400	49,374	1,164,700	109,830
Other countries	237,200	25,994	3,254,000	375,995
Totals	2,369,100	£280,892	8,614,400	£927,265
Waste and reclaimed rubber	22,400	600	719	3,340
Totals	2,391,500	£281,492	8,686,300	£930,605
Gutta percha	4,000	£933	70,500	£12,234
MANUFACTURED—				
Boots and shoes..*dozen pairs*	.....	.....	76	192
Insulated wire	.....	.....	.....	27
Automobile tires and tubes	.....	1,393	.....	9,940
Motorcycle tires and tubes	.....	326	.....	450
Bicycle tires and tubes	.....	395	.....	2,584
Carriage tires and tubes	.....	522	.....	48
Totals	.....	£2,636	.....	£13,241

MARKET FOR COTTON AND OTHER FABRICS.

NEW YORK.

AFTER A SHORT FLURRY at the end of July and beginning of August middling spot cotton fell to 31.50 cents, a price to which it clung steadily until August 25, when it advanced to 32.15 cents, due to rumors of a poor crop. The estimate of the crop, which is below middling in quality, is about 11,640,000 round bales. Considering that crops have been short for four consecutive years there would be a cotton panic were it not for the war conditions hitherto and for the present scarcity of ocean transportation.

EGYPTIAN COTTON is coming in in small quantities, the whole cotton crop is needed in England to enable the mills to return to the output of the years before the war. The Alexandria market shows weakness, prices ranging from 59 to 62 cents for Sakellaridis and from 55 to 56 cents for Upper Egyptian, with little business done. A little Egyptian is being doled out to American buyers. The fall in sterling exchange should encourage trading. The market will probably continue unsettled till

the new crop begins to come down in quantities in October and November.

SEA ISLAND COTTON.—This must be left out of consideration this year. The old crop is practically exhausted, while the boll weevil has worked havoc with the new crop, which will amount in all likelihood to less than 20,000 bales this year, so that the tire fabric industry must turn elsewhere for material. The Meade cotton which has been raised as a substitute has not proved popular.

AMERICAN-EGYPTIAN.—The cotton that is free will not make up for the Sea Island shortage. The crop this year is late, and will hardly begin to move before September. The rains have had a bad effect, but the crop will be larger than any the Southwest has previously raised; from 45,000 to 50,000 bales is the estimate. No forward business has been doing.

TIRE FABRICS.—The market is very strong, the product of the mills has been sold, and the factories, though they are working to their limit, will be unable to supply the demand. No new factory equipment has been built lately, while labor troubles have cut the working time from 54 hours to 48 hours a week, thus reducing production. Staple cotton is scarce, and while manufacturers are using peelers as a substitute, some factories prefer to restrict production rather than continue with the inferior material. Little business is being done for next year though great interest is shown the 1920 possibilities.

OTHER FABRICS.—Belting and hose duck have been quiet until last week; lately the market has been fairly active. There is a strong demand for sheetings, which are sold out to the end of the year. No demand for Osnaburgs. Carriage cloth is very scarce, the mills are sold out practically till the middle of 1920. Yarn prices are high and firm, and advancing rapidly.

NEW YORK QUOTATIONS.

AUGUST 25, 1919.

Prices subject to change without notice.

ASBESTOS CLOTH:			
Brake lining, 2½ lbs. sq. yd., brass or copper insertion	*lb.*	.85	@
2¼ lbs. sq. yd., brass or copper insertion	*lb.*	.90	@
BURLAPS:			
32—7-ounce	*100 yards*	13.00	@
32—8-ounce		13.50	@
40—7½-ounce		15.40	@
40—8-ounce		15.50	@
40—10-ounce		17.50	@
40—10½-ounce		17.75	@
45—7½-ounce		17.75	@
45—8-ounce		18.00	@
45—9½-ounce		None	
48—10-ounce		20.00	@
DRILLS:			
38-inch 2.00-yard	*yard*	.37½	@
40-inch 2.47-yard		.31½	@
52-inch 1.90-yard		.42½	@
52-inch 1.95-yard		.41	@
60-inch 1.52-yard		.52½	@
DUCK:			
CARRIAGE CLOTH:			
38-inch 2.00-yard enameling duck	*yard*	.36½	@
38-inch 1.74-yard		.41½	@
72-inch 16.66-ounce		.83½	@
72-inch 17.21-ounce		.86	@
MECHANICAL:			
Hose	*pound*	.65	@
Belting		.70	@
HOLLANDS, 40-INCH:			
Acme	*yard*	.30	@
Endurance		.38	@
Penn		.46	@
OSNABURGS:			
40-inch 2.35-yard	*yard*	.29¼	@
40-inch 2.48-yard		.28¼	@
37½-inch 2.42-yard		.28½	@
RAINCOAT FABRICS:			
COTTON:			
Bombazine 64 x 60 water-repellent	*yard*	.24	@
60 x 48 not water-repellent		.21	@
Cashmeres, cotton and wool, 36-inch, tan		.80	@ .85
cotton, blue and black		.44	@ .45
Twills 64 x 72		.40	@
64 x 102		.42	@
Twill, mercerized, 36-inch		.42½	@
Tweed		.55	@ .70
printed		.20	@ .25
Plaids 60 x 48		.20	@
56 x 44		.19	@
Repp		.42	@ .49
Surface prints 60 x 48		.21	@
64 x 60		.22	@
IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING—PLAIN AND FANCIES:			
63-inch, 3¼ to 7½ ounces	*yard*	1.30	@ 3.50
36-inch, 2¾ to 5 ounces		.75	@ 1.90

COMPARATIVE SUMMARY—COTTON AND LINTER PRODUCTION: CROPS OF 1899 TO 1918.

Growth year.	Cotton (exclusive of linters). Running bales, counting round as half bales	Equivalent 500-pound bales.	Total.	Running bales. Upland. Square.	Round.	Sea Island.	Linters. Running bales.	Equivalent 500 pound bales.
1918	11,906,480	12,040,532	11,983,582	[1]11,777,170	154,204	52,208	(2)	(2)
1917	11,248,242	11,302,375	11,342,780	11,061,085	189,076	92,619	1,096,422	1,125,719
1916	11,363,915	11,449,930	11,460,084	11,150,186	192,339	117,559	1,300,163	1,330,714
1915	11,068,173	11,191,820	11,124,031	10,920,471	111,716	91,844	944,640	931,141
1914	15,905,840	16,134,930	15,934,649	15,795,377	57,618	81,654	832,401	856,900
1913	13,982,811	14,156,486	14,032,792	13,855,267	99,962	77,563	631,153	638,881
1912	13,488,539	13,703,421	13,529,303	13,373,998	81,528	73,777	602,324	609,594
1911	15,553,073	15,692,701	15,603,850	15,383,003	101,554	119,293	556,276	557,575
1910	11,568,334	11,608,616	11,624,777	11,421,522	112,887	90,368	397,628	397,072
1909	10,072,731	10,004,949	10,148,076	9,902,595	150,690	94,791	313,478	310,433
1908	13,086,005	13,241,799	13,207,157	12,870,994	242,305	93,858	346,126	345,507
1907	11,057,822	11,107,179	11,157,096	10,871,652	198,549	86,895	268,060	268,282
1906	12,983,201	13,273,809	13,117,310	12,791,541	268,219	57,550	322,064	321,689
1905	10,495,105	10,575,017	10,635,023	10,242,648	279,836	112,539	230,497	229,539
1904	13,451,337	13,438,012	13,599,412	13,198,944	296,151	104,317	245,973	241,942
1903	9,819,969	9,851,129	10,205,073	9,359,472	770,208	75,393	195,752	194,486
1902	10,588,250	10,630,945	11,078,882	9,992,665	981,264	104,953	196,223	196,223
1901	9,582,520	9,509,745	9,954,945	9,132,215	744,851	77,879	166,026	166,026
1900	10,102,102	10,123,027	10,486,148	9,629,762	768,092	88,294	143,500	143,500
1899	9,393,242	9,345,391	9,645,974	9,043,231	505,464	97,279	114,544	114,544

[1] Includes 36,187 American-Egyptian bales.
[2] Monthly reports now collected from oil mills, total linter production not available until close of season—876,990 equivalent 500-pound bales produced from August 1, 1918, to April 30, 1919.

IMPORTED PLAID LINING (UNION AND COTTON):			
63-inch, 2 to 4 ounces	yard	.90 @	1.85
36-inch, 2 to 4 ounces		.55 @	1.10
DOMESTIC WORSTED FABRICS:			
36-inch, 4½ to 8 ounces	yard	.65 @	1.20
DOMESTIC WOVEN PLAID LININGS (COTTON):			
36-inch, 3¼ to 5 ounces	yard	.21 @	.32
SHEETINGS:			
40-inch, 2.35-yard	yard	.31½ @	
40-inch, 2.50-yard		.29¼ @	
40-inch, 2.70-yard		.27¼ @	
40-inch, 2.85-yard		.26 @	
40-inch, 3.15-yard		.27¼ @	
40-inch, 3.60-yard		.23½ @	
JACKET:			
Delaware	yard	.32 @	
Schuylkill	yard	.37 @	
SILKS:			
Canton, 38-inch	yard	.52½ @	
Schappe, 36-inch		.72½ @	
TIRE FABRICS:			
17¼-ounce Sea Island, combed	pound	1.45 @	
17¼-ounce Egyptian, combed		1.20 @	
17¼-ounce Egyptian, carded		*1.12 @	
17¼-ounce Peelers, combed		*1.18 @	
17¼-ounce Peelers, carded		.95 @	

*Nominal.

TIRE FABRICS

JENCKES SPINNING COMPANY

PAWTUCKET RHODE ISLAND

AKRON OFFICE
407 Peoples Savings & Trust Co. Building.

SEA ISLAND COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO JULY 31, 1919.

	Receipts. 1918-19.	1917-18.
Stock August 1, 1918: Savannah, 15,247; Charleston, 517; Jacksonville, 10,016 bales	25,780	1,044
Received at Savannah (gross)	16,156	32,022
Received at Charleston	10,067	6,971
Received at Jacksonville	12,678	40,146
Received at Brunswick	.....	300
Received at interior points and shipped direct to Southern mills	5,735	7,856
Totals	70,416	88,339
Less total exports	55,294	62,559
Stock July 31, 1919: Savannah, 4,901; Charleston, 90; Jacksonville, 10,131	15,122	25,780
Crop grown according to final ginners' report	52,208	92,501

EXPORTS, 1918-19.

From—	To Great Britain	Continent.	North Mills.	South Mills.	Burned.	Totals.
Savannah	723	160	22,625	2,628	366	26,502
Charleston	371	237	9,338	548	...	10,494
Jacksonville	...	...	12,563	...	...	12,563
Interior points	...	...	.....	5,735	...	5,735
Totals	1,094	397	44,526	8,911	366	55,294

COMPARATIVE STATEMENT OF EXPORTS FOR PAST SIX YEARS.

To—	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19
Great Britain	11,749	1,922	1,667	1,423	727	1,094
Continent	4,833	1,991	1,060	173	142	397
Domestic, North mills	67,636	60,879	60,822	88,496	50,280	44,451
Domestic, South mills	14,447	15,409	21,697	24,367	11,410	8,911
Burned	.....	.....	.....	.....	.....	366
Totals	98,645	80,201	85,246	114,573	62,559	55,219

COMPARATIVE STATEMENT OF CROP GROWN FOR PAST SIX YEARS.

To—	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19
South Carolina	8,670	5,590	6,178	3,486	7,313	9,964
Georgia and Florida	68,820	76,008	85,742	114,058	85,188	41,425
Totals	77,490	81,598	91,920	117,544	92,501	51,389

(Compiled by John Malloch & Co., Savannah, Georgia.)

EGYPTIAN COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO JULY 9, 1919.

	1918-1919.	1917-1918.	1916-1917.
To Liverpool bales	225,648	224,849	214,726
Manchester	118,870	118,404	131,609
Other United Kingdom ports	5,537	136,951	.....
Total shipments to Great Britain	350,055	480,204	346,335
To France	54,803	25,483	27,735
Spain	15,880	8,085	10,321
Italy	39,839	28,529	31,603
Switzerland	.....	.....	31,731
Russia	.....	.....	31,731
Greece	4,463	2,700	65
Total shipments to Continent	136,568	71,324	121,343
To United States	65,230	75,420	120,731
India	.....	.....	100
Japan	21,329	14,514	11,155
Total shipments to all parts	573,182	641,462	599,664
Total crop (interior gross weight), cantars[1]	.....	6,315,841	5,126,199

[1]A cantar equals 98 pounds.
(Compiled by Davies, Benachi & Co.)

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

NEW YORK.

DURING THE PAST MONTH the demand for chemicals and compounding ingredients has been generally brisk in all items, and present conditions indicate a steady continuance of the demand.

ANILINE OIL.—There has been a distinct advance in price as indicated last month. This may later affect the price of such accelerators as are derived from aniline.

BARYTES.—The demand is good, and the price steady at about $21.50 per ton.

BENZOL.—There has been a very active consumption, and prices have advanced one cent per gallon.

CARBON TETRACHLORIDE.—Business has continued dull through the month and prices weak.

DRY COLORS.—The market has continued to improve, and at the close, inquiries from the rubber trade indicate the existence of a very good demand.

LITHARGE.—The market on all lead products is very active and consumers' demands are taxing output.

LITHOPONE.—Production is practically sold up, and manufacturers are experiencing difficulty in meeting consumers' requirements. In fact, there is an excess of business being offered.

MAGNESIA.—This material is experiencing a renewal of favor with rubber manufacturers. The more active call will probably result in an increase in the price of the product.

MINERAL RUBBER.—There has developed a pronounced increase in export sales in mineral rubber in addition to large domestic consumption.

SUBLIMED LEAD.—The same conditions rule with this material as in the case of litharge and white lead, producing firm prices.

WHITING.—The market is well maintained at firm prices.

ZINC OXIDE.—The reaction of the automobile tire industry is reflected particularly in the brisk demand for zinc oxide.

NEW YORK QUOTATIONS.

AUGUST 25, 1919.

Prices subject to change without notice.

ACCELERATORS, ORGANIC.				
Accelerator, N. C. C.	lb.	.50	@	
Accelerene	lb.	3.70	@	
Accelemal	lb.	.55	@	
Aldehyde ammonia crystals	lb.	1.60	@	1.25
Aniline oil	lb.	.26	@	.27
Excellerex	lb.	.85	@	
Hexamethylene tetramine (powdered)	lb.	.93	@	1.05
Paraphenylenediamine	lb.	3.50	@	
Thiocarbanilide	lb.	.50	@	
ACCELERATORS, INORGANIC.				
Lead, dry red (bbls.)	lb.	.10¼	@	
sublimed blue (bbls.)	lb.	.08¼	@	
sublimed white (bbls.)	lb.	.08¼	@	
white, basic carbonate (bbls.)	lb.	.09	@	
Lime, flour	lb.	.01¼	@	
Litharge, domestic	lb.	.09¼	@	
sublimed	lb.	.10	@	
Magnesium, carbonate	lb.	.12½	@	
calcined heavy (Thistle)	lb.	.11	@	
light (Manhattan)	lb.	.35	@	
Magnesium oxide	lb.	.62	@	
Magnesite	lb.	.04	@	
ACIDS.				
Acetic, 28 per cent (bbls.)	lb.	.03	@	
glacial, 99 per cent (carboys)	lb.	.12	@	
Cresylic (97% straw color)	gal.	.85	@	.90
(95% dark)	gal.	.80	@	.85
Muriatic, 20 degrees	cwt.	1.75	@	2.00
Nitric, 36 degrees	lb.	.05½	@	
Sulphuric, 66 degrees	lb.	.01½	@	.02
ALKALIES.				
Caustic soda, 76 per cent (bbls.)	lb.	.04¼	@	
Soda ash (bbls.)	lb.	.03½	@	
COLORS.				
Black:				
Bone, powdered	lb.	.05	@	
granulated	lb.	.09	@	
Carbon black (sacks, factory)	lb.	.12	@	
Drop	lb.	.10	@	
Ivory black	lb.	.17	@	
Lampblack	lb.	.16	@	
Oil soluble aniline	lb.	*.40	@	
Rubber black	lb.	.07	@	
Blue:				
Cobalt	lb.	.25	@	.35
Prussian	lb.	.65	@	.75
Ultramarine	lb.	.18	@	.40
Brown:				
Iron oxide	lb.	.03	@	.06
Sienna, Italian, raw and burnt	lb.	.06	@	.15
Umber, Turkey, raw and burnt	lb.	.05	@	.06
Vandyke	lb.	.02½	@	.03½
Green:				
Chrome, light	lb.	.35	@	.40
medium	lb.	.40	@	.50
dark	lb.	.50	@	.60
commercial	lb.	.07	@	.15
Oxide of chromium (casks)	lb.	.75	@	.85
Red:				
Antimony, crimson, sulphuret of (casks)	lb.	.45	@	
Antimony, golden sulphuret of (casks)	lb.	.25	@	
golden sulphuret (States)	lb.	.28	@	
red sulphuret (States)	lb.	.25	@	
vermilion sulphuret	lb.	.55	@	
Arsenic, red sulphide	lb.	.25	@	
Indian	lb.	.08½	@	
Toluidine toner	lb.	4.00	@	4.50
Iron oxide, reduced grades	lb.	.14	@	
pure bright	lb.	.16	@	
Spanish	lb.	.04¼	@	.05
Venetian	lb.	.02	@	.04½
Oil soluble aniline, red	lb.	*1.80	@	
orange	lb.	*1.25	@	
Oximony	lb.	.18	@	
Vermilion, English, pale, medium, dark	lb.	1.70	@	
artificial	lb.	.35	@	.40
White:				
Aluminum bronze, C. P.	lb.	.58	@	
superior	lb.	.55	@	
Lithopone, domestic	lb.	.06¾	@	.07
Ponolith (carloads, factory)	lb.	*.07	@	.07¼
Rubber-makers' white	lb.	*.06½	@	.06¾
Zinc oxide, Horsehead (less carload, factory):				
"XX red"	lb.	.09¼	@	
"Special"	lb.	.09¾	@	
French process, red seal	lb.	.09¾	@	
green seal	lb.	.10¾	@	
white seal	lb.	.11¾	@	
(States)	lb.	.08¾	@	
Azo, ZZZ, lead free (less carload factory)	lb.	.09¼	@	
ZZ, under 5% leaded (less carload factory)	lb.	.08¾	@	
Z, 8-10% leaded (less carload factory)	lb.	.08¼	@	
Yellow:				
Cadmium, sulphide, yellow, light, orange	lb.	2.00	@	
red	lb.	1.85	@	
Chreme, light and medium	lb.	.27	@	
Ochre, domestic	lb.	.02	@	.03½
imported	lb.	.04½	@	.06
Oil soluble aniline	lb.	*1.20	@	
Zinc chromate	lb.	.45	@	.48
COMPOUNDING INGREDIENTS.				
Aluminum flake	ton	30.00	@	
Aluminum oxide	lb.	*.18	@	
Ammonia carbonate, powdered	lb.	.13¼	@	.14
Asbestine (carloads)	ton	25.00	@	
Asbestos (bags)	ton	35.00	@	
Avoilas compound	lb.	.15	@	
Barium, carbonate, precipitated	ton	65.00	@	
sulphide, precipitated	lb.	.07	@	
dust	lb.	.03¼	@	
Barytes, pure white	ton	33.50	@	
off color	ton	15.50	@	
uniform floated	ton	33.50	@	
Basofor	lb.	.04	@	
Blanc fixe	lb.	.04	@	
Bone ash	lb.	.05	@	
Chalk, precipitated, extra light	lb.	.05	@	.05½
precipitated, heavy	lb.	.04	@	.04½
China clay, domestic	ton	8.50	@	20.00
imported	ton	18.00	@	23.50
Shawnee	ton	*15.00	@	
Cork flour	lb.	.53	@	
Cotton linters, clean mill run, f. o. b. factory	lb.	.04	@	
Fossil flour (powdered)	ton	60.00	@	
(bolted)	ton	65.00	@	
Diatomite	lb.	.03	@	
Glue, high grade	lb.	.35	@	.40
medium	lb.	.16	@	.28
low grade	lb.	.12	@	.15
Graphite, flake (400-pound bbl.)	lb.	.10	@	.25
amorphous	lb.	.04	@	.08
Ground glass FF. (bbls.)	lb.	.03	@	
Infusorial earth (powdered)	ton	60.00	@	
(bolted)	ton	65.00	@	
Mica, powdered	lb.	.03½	@	.06
Pumice stone, powdered (bbl.)	lb.	.05	@	
Rotten stone, powdered	lb.	.02½	@	.04½
Rub-R-Glu	lb.	*.20	@	.25
Silex (silica)	ton	22.00	@	40.00
Starch, powdered corn (carload, bbls.)	cwt.	6.24	@	
(carload, bags)	cwt.	6.02	@	
Talc, powdered soapstone	ton	25.00	@	
Tripoli earth, air-floated	ton	25.00	@	
Tyre-lith	ton	85.00	@	

Whiting, Alba (carloads)	cwt.	.80	@	.90
Columbia	cwt.	.80	@	
commercial	cwt.	1.25	@	1.30
English cliffstone	cwt.	1.50	@	2.00
gilders	cwt.	1.30	@	1.35
Paris, white, American	cwt.	1.35	@	1.50
Quaker	cwt.	.70	@	.80
Wood pulp, imported	lb.	.03½	@	
Wood flour, American	lb.	.01¼	@	

MINERAL RUBBER.

Gilsonite	lb.	.03½	@	
Genasco (carloads factory)	ton	55.00	@	
(less carloads factory)	ton	57.00	@	
Hard hydrocarbon	ton	30.00	@	
K-X	ton	120.00	@	
K. M. R.	ton	40.00	@	60.00
M. R. X.	ton	100.00	@	
Pioneer, carload, factory	ton	50.00	@	
less carload, factory	ton	55.00	@	
Raven M. R.	ton	.50	@	.70
Refined Elaterite	ton	175.00	@	
Richmond	ton	75.00	@	
No. 64	ton	44.00	@	
318/320 M. P. hydrocarbon	ton	50.00	@	
Robertson M. R. Special (carloads, factory)	ton	80.00	@	
M. R. (carloads, factory)	ton	55.00	@	
M. R. (less carloads, factory)	ton	60.00	@	
Rubpron (carloads, factory)	ton	50.00	@	
(less car, factory)	ton	60.00	@	
Walpole rubber flux (factory)	lb.	.05	@	

OILS.

Castor, No. 1, U. S. P.	lb.	.23	@	
No. 3, U. S. P.	lb.	.20	@	
Corn, refined Argo	cwt.	28.56	@	
Cotton	lb.	.26	@	
Glycerine (98 per cent)	lb.	.21	@	
Glycerole	lb.	.55	@	
Linseed, raw (carloads)	gal.	2.22	@	
Linseed compound	gal.	*.85	@	
Palm (Niger)	lb.	.17	@	
Peanut	lb.	.27	@	
Petrolatum	lb.	.06¼	@	
Petroleum grease	lb.	.04¼	@	
Pine, steam distilled	gal.	.78	@	.96
Rapeseed, refined	gal.	1.60	@	
blown	lb.	.22	@	
Rosin	gal.	.93	@	1.10
Soya bean	lb.	.20	@	
Tar	gal.	.35	@	.38

RESINS AND PITCHES.

Cantella gum	lb.	.55	@	
Tar, retort	gal.	.28	@	
kiln	gal.	.27	@	
Pitch, Burgundy	lb.	.09	@	
coal tar	lb.	.01	@	
pine tar	lb.	.04	@	
ponto	lb.	.14	@	
Resin, Pontianak, refined	lb.	None		
granulated	lb.	None		
fused	lb.	None		
Rosin, K.	bbl.	22.50	@	
Shellac, fine orange	lb.	1.30	@	

SOLVENTS.

Acetone (98.99 per cent drums)	lb.	.15	@	
methyl (drums)	gal.	1.10	@	
Benzol, water white	gal.	.24	@	.28
Beta-naphthol, resublimed	lb.	.95	@	
ordinary grade	lb.	.48	@	
Carbon bisulphide (drums)	lb.	.05½	@	
tetrachloride (drums)	lb.	.10	@	.12
Naphtha, motor gasoline (steel bbls.)	gal.	.24½	@	
73 @ 76 degrees (steel bbls.)	gal.	None		
68 @ 70 degrees (steel bbls.)	gal.	None		
Solvent	gal.	.20	@	
V. M. & P. (steel bbls.)	gal.	.23½	@	
Toluol, pure	gal.	.26	@	.30
Turpentine, spirits	gal.	1.73	@	
wood	gal.	1.68	@	
Osmaco reducer	gal.	.30	@	
Xylol, pure	gal.	.35	@	.40
commercial	gal.	.30	@	.35

SUBSTITUTES.

Black	lb.	.10½	@	.20
White	lb.	.12½	@	.23
Brown	lb.	.15	@	.23
Brown factice	lb.	.09½	@	.21¼
White factice	lb.	.11½	@	.22½
Paragol soft and medium (carloads)	cwt.	24.08	@	
hard	cwt.	23.58	@	

VULCANIZING INGREDIENTS.

Lead, black hyposulphite (Black Hypo)	lb.	.52	@	.56
Orange mineral, domestic	lb.	.13¼	@	
Sulphur chloride (drums)	lb.	.06½	@	
Sulphur, flour, Brooklyn brand (carloads)	cwt.	2.90	@	
pure soft (carloads)	cwt.	2.90	@	
superfine (carloads, factory)	cwt.	2.50	@	
(See also Colors—Antimony)				

WAXES.

Wax, beeswax, white	lb.	.70	@	
ceresin, white	lb.	.15	@	.18
carnauba	lb.	.56	@	.60
ozokerite, black	lb.	.60	@	
green	lb.	*.78	@	.80
montan	lb.	*.35	@	
substitute	lb.	.42	@	
paraffine, refined 118/120 m. p. (cases)	lb.	.08¼	@	
123/125 m. p. (cases)	lb.	.08¼	@	
128/130 m. p. (cases)	lb.	.09¼	@	

*Nominal.

THE MARKET FOR RUBBER SCRAP.

NEW YORK.

THE VOLUME OF BUSINESS in scrap rubber during the past month has been very limited. Since the removal of the English embargo on rubber scrap several weeks ago the movement of inner tubes has not gained appreciably.

Market conditions are not noticeably improving, although the rubber scrap dealers are hopeful of marked activity by October.

BOOTS AND SHOES. There has been an off and on demand just sufficient to hold prices steady.

TIRES. This grade has not been called for to any great extent. There has been fair buying for picking purposes. Prices have been steady and firm for good stock.

INNER TUBES. The situation continues without interest.

QUOTATIONS FOR CARLOAD LOTS DELIVERED.

August 25, 1919.

Prices subject to change without notice.

BOOTS AND SHOES:

Arctic tops	lb.	.01	@	
Boots and shoes	lb.	.08¼	@	
Trimmed arctics	lb.	.06½	@	.06¾
Untrimmed arctics	lb.	.05¾	@	

HARD RUBBER:

Battery jars, black compound	lb.	.01	@	
No. 1, bright fracture	lb.	.23	@	.24

INNER TUBES:

No. 1, old packing	lb.	.19	@	.20
No. 2	lb.	.10½	@	.10¾
Red	lb.	.10	@	.10½

MECHANICALS:

Black scrap, mixed, No. 1	lb.	.03½	@	.04
No. 2	lb.	.03	@	
Car springs	lb.	.03½	@	.04
Heels	lb.	.03	@	.03½
Horse-shoe pads	lb.	.03	@	.03½
Hose, air brake	lb.	.04¼	@	
fire, cotton lined	lb.	.01½	@	.01¾
garden	lb.	.01½	@	.01¾
Insulated wire stripping, free from fiber	lb.	.03½	@	.04
Matting	lb.	.01¼	@	.01½
Red packing	lb.	.05½	@	.06
Red scrap, No. 1	lb.	.09	@	.10
No. 2	lb.	.06¾	@	.07¼
White scrap, No. 1	lb.	.10	@	.11
No. 2	lb.	.08	@	.09

TIRES:

PNEUMATIC—

Auto peelings, No. 1	lb.	.07	@	.08
No. 2	lb.	.05	@	.05½
Bicycle	lb.	.03	@	.03¼
Standard white auto	lb.	.04¾	@	.05
Standard mixed auto	lb.	.04	@	
Stripped, unguaranteed	lb.	.03	@	
White, G. & G., M. & W., and U. S.	lb.	.05	@	.05¼

SOLID—

Carriage	lb.	.04	@	.04¼
Irony	lb.	.01	@	
Truck	lb.	.04	@	.04¼

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